The Globalization of Food Security: the role of preferences and framing in setting the food security agenda

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Abstract

For any policy problem, the way it is framed has the potential to directly influence the types of solutions decision-makers choose. The challenge seems to come when there are multiple frames for a single policy problem. Food security is one such policy problem; it has multiple frames through which we can understand the challenges and opportunities. This research attempts to understand how the framings of food security as a global or local problem impact the types of choices we make in order to address this complex issue and how the policy agenda may better reflect the preferences of the public. This thesis reviewed the literature on choice architecture, sets up a behavioural experiment that presents multiple choices to a population drawn from the lay public and evaluates the impacts of different frames (local-global; certain-uncertain; immediate-long-term) on decisions. We found that respondents generally were not motivated to allocate funds differently when they were distributing their own money and public funds but we found they were more inclined to support global, long-term initiatives and local, short-term ventures. These allocations lead to the conclusion that individuals may frame chronic, ongoing food insecurity as a global issue, which is best addressed by employing larger scale integrated solutions such as research and development projects, and see local food insecurity as a temporary problem that can be alleviated through community based short term projects like food banks.

Keywords: Food Security, Decision-Making, Canada, Funds allocation, Self-sufficiency

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1. Introduction

When it comes to public policy the role of policy experts and decision-makers is to identify problems and to solve them. The challenge in this is that there are multiple ways in which a potential policy problem may be structured, defined, or framed within the political and social discourse. How a problem is understood is decided through the deliberation and powering of various political, economic, and societal actors and forces. Thus, there are a variety of ways of understanding each policy problem, and because of this there are also a plethora of solutions that may be chosen to address a given problem. Each of these solutions is based upon a different understanding of how much we know about the problem; who is responsible, what our goals are in solving the problem, and how certain we are about how effective our solution will be. Because of the socially constructed nature of public policy problems, no understanding of a particular problem is *necessarily* more valid or more correct than any other. As such, the solutions a decision maker chooses are based largely on how that individual or group or government understands the problem. Better governance means that decision-makers need to be more aware of the variety of understandings of a problem as well as provide "more and better reflexive problem structuring through better institutional, interactive and deliberate designs for public policy debate" (Hoppe 2010, 43).

The issue of food security appears to be a policy problem for which there are a variety of structures and frames that have been employed in the wider debate. Food and food production, more than almost anything else, touch our lives every day in many different and important ways. The policy and programs surrounding food have similar,

sweeping impacts on the everyday lives of citizens throughout Canada and the world. In a world increasingly vulnerable to issues like environmental degradation and political unrest, food has been and will continue to be one of the areas of our lives that experiences the impacts of these issues most intimately and immediately. The issue of food security has become progressively more important to all governments around the world, especially in response to pervasive poverty and malnourishment and the degradation of the environment. Depending on how a decision maker understands food security as a problem, that decision maker may be more oriented toward particular initiatives or policies to solve the problem. It seems that two schools of thought have arisen around what kinds of initiatives should be supported to improve food security in Canada and globally. The first notion is that of ensuring global food security as a means of ensuring food security for Canadians. This understanding lends itself to research and development programs, which focus on improving crop productivity, especially in the developed world, and the proliferation of liberal free market practices so that all nations have access to affordably priced and sufficient quantities of food. The second school of thought is one that focuses on self-sufficiency as a means of improving food security in Canada. Self-sufficiency efforts tend to be implemented on the local, context-dependent level. The popularity of community gardening initiatives in cities across Canada speaks to this notion of ensuring food security here at home before spending time and money in other parts of the world. This apparent dichotomy between global and local initiatives is one that occurs throughout all policy spaces and is one where decision-makers often are forced to choose one method over the other.

In addition to conducting a decision-making experiment, I also conducted a policy scan in order to develop exemplar food security initiatives based on real world projects. This policy scan contained both short and long term programs at the local community level and the international level. These initiatives were then used to discern the preferences of respondents and determine whether they employed an understanding of food security as an issue that can be addressed through globally integrated strategies or an issue that is best alleviated through local community based initiatives. Additionally, through the inclusion of both long and short-term projects I was able to test for the impacts of temporal discounting on the decision-making behaviour of respondents. By studying the preferences of decision makers in regard to initiatives meant to combat food insecurity, we are able to better understand how decision-makers view both this issue and deal with other complex and uncertain problems. If we can understand these preferences and potentially how to influence them, then we will be able to develop and implement better, more effective programs based on the knowledge of what factors influence the choices that people make. This kind of knowledge would be helpful to policy-makers, advocacy groups, industry, and citizens in order to better understand and potentially influence policy and its outcomes.

Using the results of the decision-making survey, I conducted a series of statistical tests (cross-tabulation and Pearson's Chi-Squared tests) to determine whether the differences in preferences observed are statistically significant. This analysis led me to reject the hypothesis that individuals will make the same allocations of funds when they are distributing money between local and global initiatives. Instead, the results of the decision-making experiment allowed me to conclude that respondents in this survey had a

preference for global food security initiatives over local ones. Additionally, the results of this survey showed no conclusive evidence that temporal discounting played a significant role in the decision-making behaviour of the respondents.

In conclusion, discovering how issues like food security enter into the decision-making process and how decision-makers understand context and choices will be increasingly important to the development of policy that addresses this and other complex problems. This research begins to fill some of the gaps in our understanding of agenda setting and decision-making, exploring how decision-making theory is applicable to complex problems. Research in the area of food policy offers decision-makers an opportunity to develop more "joined-up" policy (Rideout et al. 2007, 570), which in this context may be beneficial in tackling the problem of food insecurity. Ultimately, the goal of the research is to inform policy development and implementation that speaks to the issue of food security and its importance to citizens today and to future generations.

2. Background

Food Security

Problems in the food policy space are increasingly complex. Food policy has some of the most visible and most important impacts on the everyday lives of citizens. Food insecurity and environmental sustainability are challenging policy problems that will impact our future and the lives of future generations (Welsh and MacRae 1998, 242). The concept of food security has evolved significantly over time. Researchers have identified at least 200 different definitions and over 450 different indicators that may be used to identify food security and describe it (Hoddinott 1999, 2). Food security was the primary

topic of interest at the World Food Summit in 1996. Those who met at this summit broadly defined food security as, a situation that exists when everyone has consistent and sufficient access to the safe and nourishing food that is necessary for a healthy life (Food and Agriculture Organization of the United Nations 1996; Lobe 2005, 5; Schmidhuber & Tubiello 2007, 19703). In the years that followed, researchers widened this definition to include notions of cultural appropriateness and environmental sustainability. Hamm and Bellows defined *Community Food Security* as "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice" (Hamm and Bellows 2003, 37). As Canada deals with the impacts of ongoing food insecurity in the North and amongst Canada's poor, we are discovering that food insecurity can have a major impact on health care costs. "Increasingly, public health officials are pointing to major challenges and healthcare costs related to chronic disease … all of which are associated with inadequate nutrition" (Lobe 2005, 6). Additionally, we are seeing food insecurity linked to environmental degradation and climate change, which will be of particular interest in Canada, where many regions across the country may experience dramatic, changes in the climate and environmental conditions.

As a result of the multitude of ways of defining food insecurity, there are also a multitude of types of food insecurity. Firstly, often when food security is defined it is concerned mainly with calories, meaning the individual is able to access enough calories to sustain themselves and their families. In recent years, researchers have become interested in micronutrient and macronutrient security. This focus on nutrition beyond calories has exposed food insecurity in places and communities that had not been

considered before (Maxwell and Smith 1992, 9). Food security can also be discussed in terms of more general food quality and food safety. Moreover, these types of food security tie into the importance of biological utilization. Biological utilization refers to "the ability of the human body to take food and translate it into either energy that is used to undertake daily activities or is stored" (Hoddinott 1999, 2-3). If the concept of food security is discussed in terms of nutrition and utilization, then not only is an adequate diet required but also a healthy physical environment is needed to avoid disease and knowledge of proper food handling and storage techniques, and potentially even access to proper health care (Hoddinott 1999).

Secondly, researchers have made a distinction between chronic food insecurity and transitory food insecurity. Chronic food insecurity is defined as when "household runs a continually high risk of [being unable] to meet the food needs of the household members" (Maxwell and Smith 1992, 15). This occurs when a household experiences ongoing entitlement failure, a term popularized by Amartya Sen (1981). An individual's entitlement is essentially their ability to acquire food for their household. How successful an individual is in this acquisition is based in a number of factors including but not limited to: employment; commodity prices; social security benefits they receive; and taxes they must pay (Sen 1981, 4). These factors will influence the status of an individual's entitlement and their ability to make exchanges for food. Additionally, an individual's entitlement can be worsened by external factors, such as a decrease in the food supply. When an individual is no longer able to exchange their entitlement to acquire an adequate amount of food, they have suffered an entitlement failure and will go hungry (Maxwell and Smith 1992, 10-11). When a household is at a continually high risk

of entitlement failure they are considered chronically food insecure. In contrast, when the risk of entitlement failure is temporarily high or the security of the household's entitlement is at risk, they would fall into the category of transitory food insecurity. This category can be further broken down into cyclical and temporary food insecurity. "Temporary food insecurity occurs for a limited time because of unforeseen and unpredictable circumstances; cyclical or seasonal food insecurity when there is a regular pattern in the periodicity of inadequate access to food" (Maxwell and Smith 1992, 15). It is important to note that chronic food insecurity and transitory food insecurity are very closely linked. Households that experience successive transitory food insecurity may be more vulnerable to chronic insecurity, especially in cases where households have sold off assets in order to alleviate temporary stress (Maxwell and Smith 1992, 17).

Agenda Setting

Despite the impact food insecurity has on the lives of individuals and communities, food security as an issue has failed to get on the policy agenda in Canada and abroad. The last government document published regarding the issue of food security was *Canada's Fourth Progress Report on Food Security*, in 2006, and there are few surveys that show any sustained public interest in food policy matters. Neither the government nor the public has managed to attract enough attention to food insecurity so that large-scale solutions could be developed to address the problem. This is largely to do with the very nature of the problem of food insecurity itself. Downs notes that there are three general characteristics typically possessed by issues that fail to enter the "issue-attention cycle" or join the process of agenda setting (Downs 2001). Firstly, the issue does not impact the majority of persons in a society; for example, in 2004 approximately 7% of the Canadian

population was considered food insecure (Agriculture and Agri-Food Canada 2006, 5). As a result, the general public will not be continually reminded of the suffering caused by the problem. The second characteristic that has kept food security as well as other problems out of the 'issue-attention cycle' is that the suffering experienced by this minority are "generated by social arrangements that provide significant benefits to a majority or a powerful minority of the population" (Downs 2001, 41). This means that in order to adequately solve the problem it would require ongoing effort and attention, as well as significant changes to social behaviours and institutions in society; often well beyond the locus of the problem. Making these changes would likely threaten the majority or powerful minorities within a society. Finally, often issues that fail to get on the public agenda do not possess any "intrinsically exciting qualities" (Downs 2001, 41). If these exciting qualities are absent it is difficult for the media to maintain the public's interest in the topic. Hunger is often viewed as voluntary (rather than involuntary), familiar (rather than exotic) and predictable (rather than random), all which make it less emotive.

The role of public attention in setting the political and policy agenda cannot be overstated. Jones and Baumgartner (2004) found that there is an important link between public attention and the policy agendas of Congress in the United States. As Downs demonstrates that the capacity of the public to maintain focus on one particular issue is very limited, Jones and Baumgartner show that this is also the case when it comes to government (2004, 2). There are a huge number of issues vying for the attention of the public and government and often the issues brought to the attention of government are the same ones that the general public is focused upon. This makes sense given the

representative nature of democratic governments; government focuses on the concerns of their constituents, and potentially vice versa. Jones and Baumgartner found that "attention allocation is a direct indicator of priorities" (2004, 3), meaning governments tend to speak publically about the same issues as those concerning everyday citizens and are more likely to legislate on these issues. This research could help explain why the issue of food security has failed to get on the policy agenda, especially the issue of ongoing food insecurity within Canada. Food insecurity has failed to seize the public's attention and as a result has also failed to capture the attention of decision-makers.

Problem Structures and Paradigms

Robert Hoppe defines policy problems as "experienced as non-acceptable discrepancies between real situations and desired future situations; between a socially constructed 'is' and 'ought'" (Hoppe 2010, 30). Problems vary politically, in terms of feasibility, and the amount of relevant knowledge available to problem solvers. But socially, problems are value laden and will vary in how they are perceived based on social norms and standards. The process of problem structuring "refers to the search, debate, evaluation, and political struggle about competing problem representation or framings" (Hoppe 2010, 30). This process is both political and analytical. In order for a government or institution to move forward with any policy problem the organization must come to some conclusion regarding the structure of the particular policy problem. Hoppe identifies a simple typology[1] of potential problem structures which are unstructured, structured, moderately structured (means), and moderately structured (ends) (Hoppe 2010, 73). Structured problems are those on which the policy makers are in general agreement on the norms

[1] See Hoppe 2010, 73 (Figure 3.1) for a diagram of Hoppe's typology

and values at stake as well as generally certain on the required in available knowledge needed in order to solve the problem. “They simply know how to turn a problematic present situation into the improved, or desirable, unproblematic future situation” (Hoppe 2010, 72). Hoppe cites examples such as building roads, eradicating disease, and providing clean water. In these situations there is access to relevant scientific and technical knowledge, which results in a high level of certainty regarding outcomes any particular intervention. Additionally, there is nearly unanimous consent on the goals at stake.

On the other hand, unstructured problems are those on which the policy makers might disagree or are uncomfortable regarding the norms and values at stake and are highly uncertain about the relevant knowledge available or needed to solve the problem. Rittel and Weber (1973) describe these types of problems as being ‘wicked’ (160). The challenge with unstructured problems is that they often consist of a cluster of interrelated problems. When you attempt to fix one problem you often find that there is and other problem, which need to be addressed as well. It becomes very difficult to disentangle this web of interrelated problems. For example, the issue of human-caused climate change may be seen as an unstructured problem, especially during the 1980s and 1990s. Until recently there was conflicting information being provided by both the scientific community as well as industry. Although, scientific consensus has been achieved on this issue, there continues to be a debate regarding whether we can trust this information as well as whether the information shows causality. Additionally, there is much debate regarding whether slowing or stopping climate change is worth the economic and social costs that would have to be incurred. This debate is a debate over values and norms. On

one side, the scientific community calls for regulation, government spending, and sweeping behavioral change. On the other, climate change skeptics reject any additional spending by government as well as any significant changes to the economic or social behavior of individuals or industry.

Finally, Hoppe presents two categories of moderately structured problems. Moderately structured (ends) problems occur when it can be seen that there is general agreements on the "norms, principles, ends, and goals of defining a desirable future state" (Hoppe 2010, 74). At the same time there is considerable uncertainty regarding the availability or reliability of information as to how to bring about these desirable future states. For example, maximizing Gross Domestic Product while minimizing inflation is an economic goal that the majority of policymakers would agree upon but it is often incredibly difficult to reach consensus on how to achieve such goals. The second of the two types, moderately structured (means) problems, are those that exist when there are high levels of certainty regarding what knowledge is relevant and required, "but there is ongoing dissent over the normative claims at stake" (Hoppe 2010, 74). Hoppe proposes the Dutch debate on abortion as an example. This debate focused largely on the morality of abortion, firstly whether it was permissible in principle then under what circumstances might be permissible and finally what procedures should be followed in order to establish such circumstances. These types of problems are often presented as moral issues with very little debate around the actual facts of the problem. It seems that generally, individuals tend to approach the problem of food security as if it were a moderately structured (ends) problem. On the part of policymakers and the general public, food insecurity is generally perceived as a problem that needs fixing but there have been

challenges in deciding what is the best way to approach this problem, but I will argue that food insecurity is a completely unstructured problem.

Although, decision-makers and policy experts notionally see food insecurity as a problem that needs to be addressed, there has been very little targeted action taken on this issue, beyond large social welfare programs. This lack of action may be seen as not only paralysis over the availability and reliability of knowledge but also a deep disagreement over the values of a society that allows food insecurity to exist. The core causes of food insecurity may be our free-market food system as well as the income inequalities that are created by our current economic and political approach to wealth redistribution. If ensuring food security is our primary goal, then it may require our governments to reallocate not only food but also wealth and housing. Is possible that the issue of food security is actually a bundle of interrelated problems such as income inequality, urban planning, and the fundamental structure of our food system. If this is the case, the issue of food insecurity may be a "wicked" problem. Like food security, any policy problem can be considered within multiple problem structures, the structure that is chosen by policymakers and decision-makers will steer any debate regarding the issue or how to address it. Each of Hoppe's problem structures, unstructured structured or moderately structured, "create quite different political task fields for" (Hoppe 2010, 16) those entrusted with developing public policy to address these problems.

Once a problem structure is identified, policy makers must begin the process of further defining the problem in order to "attribute cause, blame and responsibility" (Stone 1989, 282). How a policy problem is defined has a substantial impact on how decision makers will approach the problem and what alternatives are considered. Stone introduces

the notion of causal stories as a means of defining problems and further understanding why and how policy choices could be made. Political actors will spend time and other resources attempting to tell the causal story that will lay blame where they think it is appropriate, and that will identify particular individuals or groups as having the responsibility to solve the problem (Stone 1989, 283-284), as well as particular solutions to the problem. This approach to understanding problem definition can be helpful in understanding how political agendas are set and how problems are approached by decision makers. Stone creates a typology[2] of four causal stories that may be employed in describing and addressing a policy problem: mechanical (unguided actions with intended consequences), accidental (unguided actions with unintended consequences), intentional (guided actions with intended consequences and inadvertent (guided actions with unintended consequences) (Stone 1989, 284). Although this typology may be helpful in describing a whole number of policy problems, it appears to be inadequate in describing more complex or unstructured policy problems like food security.

Studying the issue of food insecurity as a problem that needs to be defined may help us come to understand how different actors have defined it and how the stories that are told about food insecurity may impact the types of initiatives that are supported by government and the public as a means of addressing it. One of the key issues with food insecurity as a policy problem is that it is difficult to assign one particular decision or phenomena as the cause of food insecurity. Such a problem requires a "complex model", according to Stone, in order to provide a sufficient explanation as to its cause. But these complex explanations often make it extremely difficult to identify a single cause of a problem, which results in a kind of innocence of those involved. Stone states "complex

[2] See Stone 1989, 285 (Table 1) for a diagram of Stone's causal stories

causal explanations are not very useful in politics, precisely because they do not offer a single locus of control, a plausible candidate to take responsibility for a problem, or a point of leverage to fix a problem" (Stone 1989, 289). As such, these types of policy problems may appear too big or unsolvable to a government or a group of decision makers. If this is how causal stories of the issue of food insecurity have been told, it makes sense that there has been a divergence of opinion on what types of initiatives will best address food insecurity in Canada and where governments should spend money and resources. Stone's complex causation model may be helpful in more fully understanding causation when it comes to Hoppe's unstructured problems.

Beyond the structure or the causal story of a particular policy problem, we can also investigate food security through different frames or paradigms. Hoppe defines a frame as a group of ideas or an interpretive schema, which "highlight certain worries over others, select out irrelevant ones, and bind the remaining concerns in a coherent pattern" (Hoppe 2010, 30). Through analyzing food security as a "master frame", Mooney and Hunt (2009) identify three different "collective action frames" through which we can further discuss what kind of problem food security is. The three frames they identify are; 1) "food security associated with hunger and malnutrition"; 2) "community food security"; and 3) the risk of agri-terrorism and biological security (Mooney and Hunt 2009, 470-471). Mooney and Hunt discuss each of these paradigms as pointing out that there is no consensus regarding what exact type of problem food security is and as a result what solutions are best suited for it. I will only discuss the first two frames in this paper, given that the types of solutions I focus on in my research pertain most closely to the issues of hunger and community food security and not biosecurity.

Each of the paradigms proposed by Mooney and Hunt may be further interpreted into two alternative interpretations, what they refer to as flat keys, the dominant interpretation, and sharp keys (2009, 471). These keys propose causal stories, and structures for each of the larger frames of the problem of food insecurity. In the context of the first frame of food insecurity as an issue of hunger and malnutrition, the flat key "either explicitly or implicitly (through the benign neglect of challenge) endorses the forces of globalization" (Mooney and Hunt 2009, 476). This framing focuses on food insecurity as an issue of the global community while at the same time individualizes action. Mooney and Hunt use the example of campaigns from charity organizations appealing to individual citizens of developed countries to "adopt" a hungry child in the developing world (2009, 476). Both the donor and the child are "presented as a radically individualized solution to the global hunger problem" (Mooney and Hunt 2009, 476).

The sharp key of the hunger frame embraces values of environmentalism and social justice, focusing "not only on the transformation of social structures toward more democratic and egalitarian forms but also on prioritizing national food self-sufficiency with low-cost, low-technology, labor-intensive forms of production" (Mooney and Hunt 2009, 477). This interpretation of the hunger frame promotes the importance of food sovereignty as a significant factor in insuring food security. "Food Sovereignty" refers to the extent to which a nation is able to procure and produce the food necessary to feed its population (Menezes 2001; Pinstrup-Andersen 2009). This alternative viewpoint posits the importance of the community or the individual state in insuring global food security in contrast with the flat key's focus on the individual in addressing a global problem (Mooney and Hunt 2009, 478). Of course, food sovereignty does not necessarily ensure

food security, but many scholars see increased involvement by local governments in agricultural and trade policies, especially those whose focus is on the developing world see food sovereignty as an important step.

The second frame, "community food security", changes the unit of analysis from the global food system to the local, community-based food system. This frame has a more sociological focus, examining exchanges between individual community members through direct contact (Mooney and Hunt 2009, 480). These interactions include farmers' markets, community kitchens, and community gardens, which are all seen as "promising means of eliminating gaps in community food systems" (Mooney and Hunt 2009, 480). An alternate interpretation of this frame puts particular focus on the community as the "object of transformation" (Mooney and Hunt 2009, 480), revealing the incompatibility between the needs of individual consumers and the power of the global market place in which multinational corporations are largely the norm. This reading of community food security draws attention to the root causes of food insecurity as being largely a feature of the global food system itself.

These two framings of food security, as firstly an issue that can be addressed through globally integrated strategies and secondly an issue that is best alleviated through local community based initiatives, were the core concepts that influenced this research project. If we are able to determine which framings are employed by the public in their personal understandings of the issue of food security, then we will also be able to determine the types of solutions they prefer as well as identify gaps in food security policy. This presents the problem that it may be difficult for individuals to articulate which paradigms they employ, they may adhere to more than one depending on the

situation, or they may have no awareness of the framing they are employing at all. This challenge leads to the exploration of behavioural economics and experimental methodologies as a means of determining which paradigms are the most popular amongst the general public.

Behavioural Economics

Traditionally, the decision-making behaviour of human beings has been understood through the lens of classical economic thought. This conception of decision-making assumes an objectively rational decision-maker who "possesses a utility function that induces a consistent ordering among all alternative choices that the actor faces, and indeed, that he or she always chooses the alternative with the highest utility" (Simon 1985, 296). It seems obvious however, that no human being is absolutely rational or objective in his or her decision-making at all times. The decision-maker described by classical economic theory has been dubbed *Homo economicus* and provides a prescriptive framework for analyzing human decision-making, but this model is not particularly helpful in predicting decision-making behaviour. In reaction to the objectively rational framework developed by economists, cognitive psychologists began to investigate how human beings actually make choices and what kind of behaviours are displayed in the decision-making process.

Based upon the work of cognitive psychology, Herbert Simon developed his own model to describe human decision-making, the boundedly rational *Homo psychologicus.* By "boundedly-rational", Simon means "behavior that is adaptive within the constraints imposed *both* by the external situation and by the capacities of the decision maker" (Simon 1985, 294). Decision-makers are constrained in many ways, including their own

computational power, the information they have been able to gather relevant to the decision at hand and external constraints like time limits. Simon proposed that decision-making is almost never entirely rational, often based in subjective experience and influenced by our social context. In order to get a clear idea about how individuals actually make decisions it is important for us to study human beings as they are; not "the nearly omniscient *Homo economicus* of rational choice theory [but] the boundedly rational *Homo psychologicus* of cognitive psychology" (Simon 1985, 303).

The field of behavioural economics (BE) investigates decision-making that is boundedly rational, socially contextualized and subjective. Using psychological experimentation, BE researchers are able to develop theories regarding decision-making and identify a range of potential cognitive practices and biases (Samson 2015,1). According to this field of research, "people are not always self-interested, cost-benefit-calculating individuals with stable preferences… Instead, our thinking tends to be subject to insufficient knowledge, feedback and processing capability, which often involves uncertainty, and is affected by the context in which we make decisions…" (Samson 2015, 1). Where classical economics has created an image of the ideal decision maker, BE presents us with a picture of what decision makers actually look like.

Choice Architecture

In the case of this research project, using an experimental methodology provides the benefit of learning about the preferences[3] of real people. One of the goals of this research is to attempt to discover if preferences exist regarding how food insecurity is addressed,

[3] "In economics, preferences are evident in theoretically optimal choices or real (behavioral) choices when people decide between alternatives. Preferences also imply an ordering of different options in terms of expected levels of happiness, gratification, utility, etc. (Arrow, 1958)…"(Samson 2015, 39).

as well as how those preferences may be altered or strengthened by the choice architecture. One way of influencing decisions is through framing[4] and nudging techniques to change the way decision makers understand the problem to be addressed, what their options are and what the outcomes of those options will be. These techniques are based on the assumption that how a choice is presented to a decision maker can have a significant impact on the choice that is made (Johnson, et al. 2012, 488). Decision makers do not have access to perfect information, nor do they have an ability to take every piece of information into equal account. Johnson and his colleagues propose that by either restructuring the task of choosing or changing how the choices are described, policy analysts can nudge decision makers to make better and more effective decisions (Johnson, et al. 2012).

BE research has looked extensively at how choice architecture influences decision-making and has brought to light a number of cognitive biases that decision makers exhibit. When discussing decision-making preferences regarding any type of public policy option, temporal or time discounting is particularly important bias to keep in mind. Temporal discounting is defined broadly as "*any* reason for caring less about a future consequence" (Frederick, *et al.* 2002, 352). Decision makers tend to prefer immediate benefits to delayed benefits which means that short-term public policy initiatives, those with immediate positive impacts, are often chosen instead of long-term options. Any sort of long-term project or initiative will inherently be perceived as more risky by the decision maker because there is more time for the project to fail to produce

[4] In this section, framing refers to the economic notion of risk/loss framing as presented in prospect theory. This is in contrast to the use of the term framing previously, which refers to framing within the political and social discourse.

benefits. In the case of food security initiatives, this research has attempted to test for this cognitive bias against long-term options.

Additionally, the types of projects that may be used as solutions to addressing food insecurity have substantial "credence qualities" (Darby and Karni, 1974), which are "those which cannot be evaluated even after product experience without costly additional information" (Supphellem & Nelson 2001, 576). Donations to charitable organizations, funding to research projects, and government supported food security initiatives all are challenged because the donor/funder is unable to directly observe the product of their support. Rather, funding these types of organizations and projects essentially involves a promise to use that funding "to undertake some project, somewhere in the world, for a specific group of people" (Supphellem & Nelson 2001, 576). Once the donation is made or the funding is allocated there is no way to control how that money is actually spent nor is there any way to evaluate how effective that contribution was in addressing the problem. These credence qualities may have an adverse impact on decision makers, causing them to perceive options with these qualities as inherently more risky.

As discussed previously, any single decision maker can understand the problem of food insecurity in a multitude of different ways. These pre-existing interpretations of the problem can have a significant impact on the decisions made to address this problem, but these frames are not the only ones that should be of concern to BE researchers. Frames can also be employed in how the problem or any potential solution is described to the decision maker. These "framing effects" (Samson 2015) can have a substantial impact on the ultimate decision of decision makers. In the case of a behavioural experiment, a potential option "can be worded in a way that highlights the positive or negative aspects

of the same decision, leading to changes in their relative attractiveness" (Samson 2015, 33). As a result it is crucially important for researchers to be aware of these potential framing effects and control for them as much as possible.

3. Experimental Design

The first phase of my research involved a policy scan of how governments and community organizations have approached the issue of food insecurity. The purpose of this scan was to inform the survey development process so that I would be able to provide exemplar projects for the respondents to choose between that were based in real projects. The scan was broken up into locally focused initiatives and globally focused projects. For the local portion of the scan, I focused on large cities across western Canada. Starting in Vancouver and moving east to Edmonton, Calgary, Saskatoon, Winnipeg and Toronto, I very quickly began to notice that the local food security projects tended to fall into a combination of six program types. The six types are: education programs, community kitchens, community gardens, drop-in meals (soup kitchens), food banks, and community action or empowerment programs. Once this typology emerged, I began to notice that all the cities that I looked at had varying combinations of initiatives that fell within these six categories and as a result I decided to stop with Toronto. Table 1 outlines this portion of the policy scan and the typology, with additional detail on each project and how it fits into each category in Appendix E1 (Local Policy Scan).

Table 1 - Local Food Security Project Typology and Illustrative Examples

Province	Education Programs	Community Kitchens	Community Gardens	Drop-In Meal Programs	Food Banks	Community Empowerment/Action Programs
British Columbia (Vancouver)	*Food Skills for Families* *Britannia School Urban Garden Project* *The World in a Garden*	*Food Skills for Families* *Fresh Choice Kitchen*	*Britannia School Urban Garden Project* *The World in a Garden*		*Greater Vancouver Food Bank Society*	*Farmers' Market Nutrition Coupon Program*
Alberta (Calgary/ Edmonton)	*Community Kitchen Program of Calgary – Souper Stars*	*Community Kitchen Program of Calgary – Calgary's Cooking*	*Sustainable Food Edmonton* *E4C – Community Garden Program*	*Hope Mission* *Community Kitchen Program of Calgary – Tummy Tamers*	*Edmonton Food Bank* *Calgary Food Bank*	*WeCan Food Basket* *Community Kitchen Program of Calgary – Good Food Box*
Saskatchewan (Saskatoon)	*Saskatoon Food Bank and Learning Centre*		*Saskatoon Food Bank and Learning Centre – The Garden Patch*	*CHEP Good Food Inc.*	*Saskatoon Food Bank and Learning Centre*	*CHEP Good Food Inc. – Good Food Box*
Manitoba (Winnipeg)					*Winnipeg Harvest Inc.*	*Winnipeg FoodShare Co-Op – Good Food Box Program*
Ontario (Toronto)		*FoodShare Toronto Inc. – Cooking Programs*	*FoodShare Toronto Inc. – School Grown Program*	*FoodShare Toronto Inc. – Cooking Programs* *Daily Bread Food Bank*	*Daily Bread Food Bank*	*FoodShare Toronto Inc. – Good Food Box Program*

The second phase of the policy scan was to investigate globally focused initiatives. For the large part, I focused on projects funded by the federal government because information for federally funded projects is easily accessed and for the most part complete. Again, while conducting this scan a typology began to appear but this time there were only three categories (Table 2). The first category was projects concerned with promoting sustainable agricultural development. These projects involve issues like environmental sustainability of agricultural practices, promoting climate change resilience and reducing rural poverty. This is done through financing programs and larger infrastructure investments in things like water and electrical systems. The second category of projects are those focused on food assistance and nutrition assistance, either as a response to an emergency such as a natural disaster or ongoing initiatives such as school feeding programs which focus on ensuring children have access to proper

nutrition. The final category are research and development projects, either through research partnerships between Canadian researchers and researchers in the developing world or research in the development of new agricultural products such as new plant varieties that may be more drought tolerant or more nutritionally dense (additional detail can be found in Appendix E2). These categories often feed into each other, beginning with research and development projects that then create new products and techniques that may then be used in sustainable agriculture projects or become part of a food assistance program.

Table 2 – Global Food Security Project Typology and Illustrative Examples

Food and Nutrition Assistance	Research and Development	Sustainable Agriculture Development
Emergency Food Assistance - World Food Programme - Red Cross - Canadian Foodgrains Bank - Direct aid in the case of emergency or disaster	*Research Partnerships with Developing Countries* - International Development Research Centre (IDRC)	*Environmental Sustainability* - Financing Programs - Partnerships with researchers
Nutrition Intervention (School Feeding Programs) - World Food Programme - UNICEF	*Research Funding for Scientists (focus on increasing nutritional value and sustainability)* - The Consultative Group for International Agricultural Research (CGIAR)	*Climate Change Resilience* - Financing programs - Partnerships with researchers
		Rural Poverty Reduction - Infrastructure investments (water, health infrastructure)

Based on the results of this policy scan, I decided to create four exemplar initiatives to use as options in the experiment: two local and two global projects. In addition to exploring the supposed dichotomy between local and global public policy initiatives, I also wanted to investigate whether temporal discounting had any significant impact in the preferences of decision makers. As a result, I chose a long-term and short-term project for the categories of local and global. For the short-term projects, I chose a Food Bank as the local project and a Nutrition Intervention project, similar to those operated by the World Food Programme, as the global project. For the long-term projects, I chose an educational community kitchen program for the local initiative and a research and development project for the global initiative. I chose each of these initiative types

because they most obviously fit the categories of local or global and short-term or long term. Additionally, each of these projects could be styled to be of similar scales ($1,000,000 operating budget) over similar periods of time (1 or 5 years) and would benefit a similar number of individuals (50,000 to 85,000). Especially when it came to local projects, it was often difficult to determine exactly how many individuals were benefiting from such programs. These programs were chosen largely because of how simple it was to calculate how many individuals could be helped with a particular operating budget or timeline.

The survey was designed in such a way as to have each respondent compare each of the four projects against all of the other projects; totaling six questions. I chose to have the decision presented as an allocation of funding to each pair of projects because I saw this as the simplest way of identifying preferences. This was inspired by 'willingness to pay' studies conducted by researchers in similar fields of study. Additionally, individuals, charitable foundations and governments are often asked to allocate funding to projects similar to the exemplar projects in this survey. I chose to give respondents five funding allocation options: 100% to the first option and none to the second; 75% to the first option and 25% to the second; 50% to each option; 25% to the first option and 75% to the second; and none to the first option and 100% to the first. This method was chosen because it was a more accurate picture of how individual preferences may be displayed. In this survey, respondents could have strong preferences for one option or have no preference between two options as well as somewhere in between.

I use the experiment to test for three hypotheses.

- Ho1: Individuals will make the same allocation of funds when they are distributing their own money and public funds.
- Ho2: Individuals will make the same allocations of funds when they are distributing money between local and global initiatives.
- Ho3: Individuals will make the same allocations of funds when they are distributing money between short-term and long-term initiatives.

The survey was developed using FluidSurveys software made available to me through the University of Saskatchewan. The survey instrument and method was evaluated and approved on October 6, 2015, by the U of S Behavioural Research Ethics Board (BEH # 15-298) (Appendix C). The order of the allocations was randomized to ensure that the respondents would not anchor on any particular allocation they made. I chose to include a manipulation in my survey with the goal of determining whether the respondents would exhibit different preferences when they were told that they were allocating their own money as opposed to someone else's. The respondents would make the original six allocations as if they were allocating their own money (using $100) and then repeat the same allocations but as if they were doing so on behalf of a larger organization (using $10,000). These two sections were separated by ten simple mathematics questions in order to discourage the respondents from repeating their allocations exactly in the second set of questions (See Appendix A for the full survey).

Finally, respondents were asked to answer a series of demographic questions, including age, gender, educational attainment, and employment status. I also included questions regarding where the respondent was born and how long they have lived in Canada. These questions were included to discern whether being born outside of Canada

would alter the preferences for local or global projects. Respondents were also asked whether they considered themselves as being interested in food security issues and if so, if they donate to, volunteer with or are employed by an organization that is engaged in food security issues. The purpose of these questions was to observe whether a potential familiarity or concern with the issue of food security might result in different preferences.

Analytical Approach

In the following Results and Analysis sections, I will present the demographic information collected from the respondents to the survey as well as the total allocations to each initiative by the respondents. Using this information, I conducted a Pearson's Chi-squared test to assess the independence of the observed allocation frequencies from the expected frequencies. Additionally, I cross-tabulated the demographic information collected against the types of allocations made by the respondents. I also conducted Pearson's Chi-Squared tests to verify the statistical significance of these cross-tabulations.

4. Results

The sample for this survey was drawn largely from University of Saskatchewan students and alumni, including students from the Johnson-Shoyama Graduate School of Public policy and the Integrated Training Program in Infectious Disease, Food Safety and Public Policy (ITraP). Additionally, the survey was distributed to volunteers and employees of a number of the local community organizations that I contacted for additional information during the policy scan phase of the project. The survey was distributed to 103 individuals and 102 of them responded to parts of or all of the survey (Figure 3). The majority of the

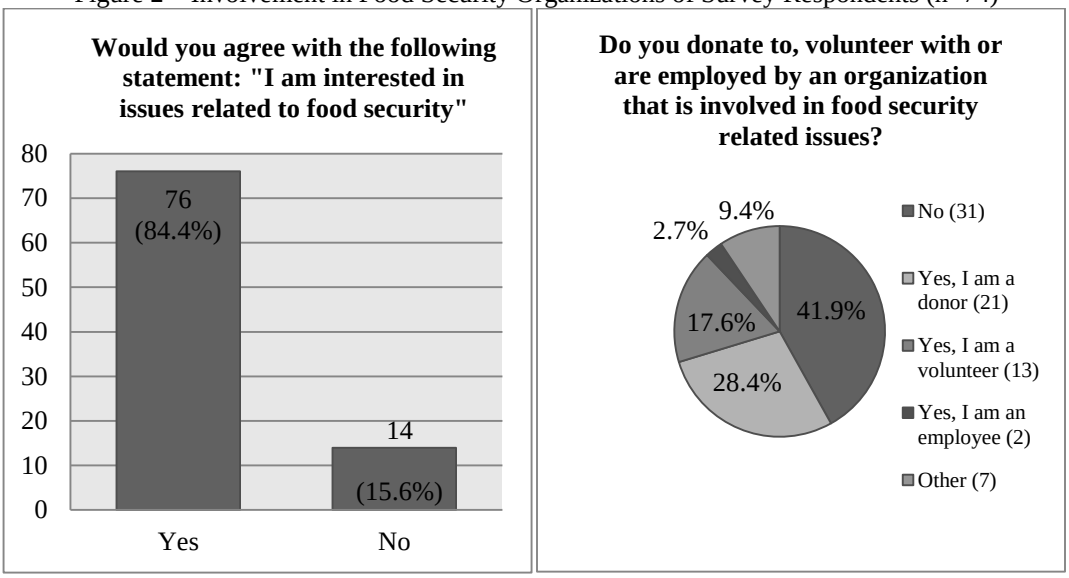
respondents who provided demographic information, identified themselves as being between the ages of 26 and 35 years old (36%), followed by the 18 to 25 age category (23.6%). The sample group had a majority of respondents identify as female (52.7%) and 44% as male, 3.3% preferred not to disclose their gender. 44% of the respondents reported having completed a Bachelor's degree, followed by 29.7% with a Master's degree. The majority of respondents reported that they were employed full-time (52.2%) while 25.6% considered themselves full-time students. 67% of the respondents have lived in Canada their whole life, followed by 13.2% for more than fifteen years and 12.1% for less than five years. Of the respondents that reported their country of birth (89), 77.5% of them were born in Canada, 5.6% in the United Kingdom and 3.4% in the United States (Table 3). The remaining respondents were born in China, Holland, Ukraine, India, Bangladesh, Barbados, Jamaica, Nigeria, and Brazil. Overall, the sample for this survey tended to be younger, more female and more highly educated than the general population. This however, is expected given that the sample was largely university students and recent alumni.

Table 3 – Demographic Information of Survey Respondents

Demographic Information of Survey Respondents						
Total Respondents: 103 *Agreed to participate: 102*	*Age:* 18 to 25 years old – 21 (23.6%) 26 to 35 years old – 32 (36%) 36 to 45 years old – 12 (13.5%) 46 to 65 years old – 17 (19.1%) 66 years or over – 7 (7.9%) Total – 89	*Gender:* Male – 40 (44%) Female – 48 (52.7%) Prefer not to say – 3 (3.3%) Total – 91	*Education:* High school diploma – 2 (2.2%) Some college – 3 (3.3%) College diploma – 5 (5.5%) Bachelors degree – 40 (44%) Masters degree – 27 (29.7%) Professional degree – 10 (11%) Doctorate degree – 4 (4.4%) Total – 91	*Employment:* Full-time – 47 (52.2%) Part-time – 6 (6.7%) Unemployed/Looking for work – 1 (1.1%) Unemployed/Not looking for work – 1 (1.1%) Full-time Student – 23 (25.6%) Retired – 7 (7.8%) Other – 5 (5.6%) Total – 90	*Residence in Canada:* All of my life – 61 (67%) Less than 5 years – 11 (12.1%) 5 to 15 years – 6 (6.6%) More than 15 years 12 (13.2%) Do not reside in Canada – 1 (1.1%) Total – 91	*Country of Birth:* Canada – 69 (77.5%) United Kingdom – 5 (5.6%) United States – 3 (3.4%) China – 3 (3.4%) Nigeria – 2 (2.3%) Bangladesh – 1 (1.1%) Barbados – 1 (1.1%) Brazil – 1 (1.1%) Holland – 1 (1.1%) India – 1 (1.1%) Jamaica – 1 (1.1%) Ukraine – 1 (1.1%) Total – 89

84.4% of the respondents reported that they were interested in issues related to food security (Figure 1). Of these individuals 41.9% (31) answered that they did not donate to, were not volunteers with or were not employed by any organizations that are involved in food security issues (Figure 2). 21 of the 74 (28.4%) respondents reported that they make donations to food security organizations, 17.6% (13) participants answered that they volunteer with these organizations and two (2.7%) were employees. 9.4% of the participants reported their involvement with food security organizations as "Other", which they responded as being either a combination of donating and volunteering, recruiting volunteers, or research and development partnerships with food security organizations.

Figure 1 – Interest in Food Security of Survey Respondents (n=90)
Figure 2 – Involvement in Food Security Organizations of Survey Respondents (n=74)



The allocations made by the respondents can be seen in Figures 3 and 4. It is important to note that respondents were allowed to skip any question during the survey and as a result the number of respondents is somewhat lower for Treatment 2, the allocation public of funds on behalf of a larger organization (between 90 and 87) than Treatment 1, the allocation of private, personal funds (between 101 and 98).

Figure 3 – Respondent Results for Treatment 1 (Private Funds Allocation)

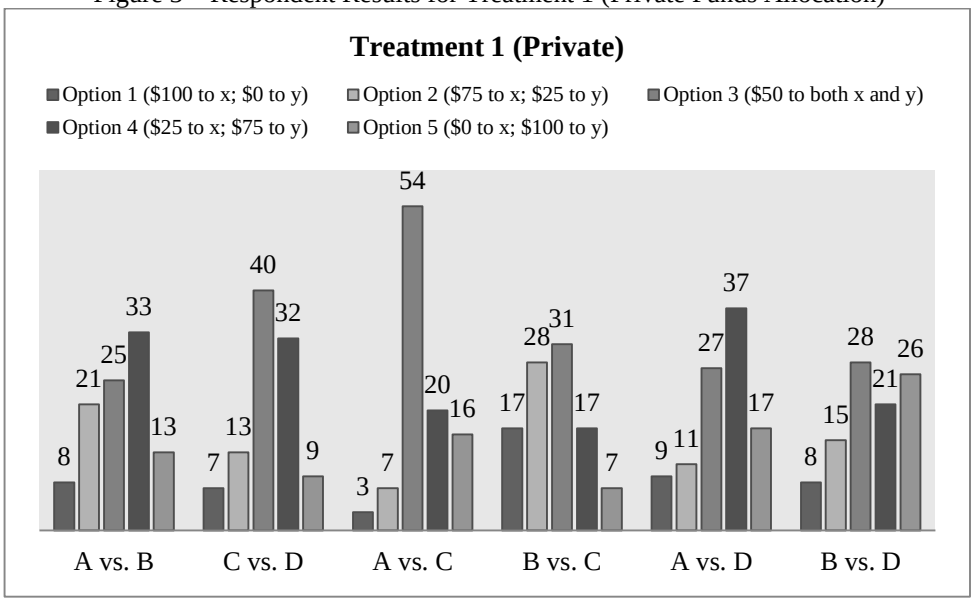
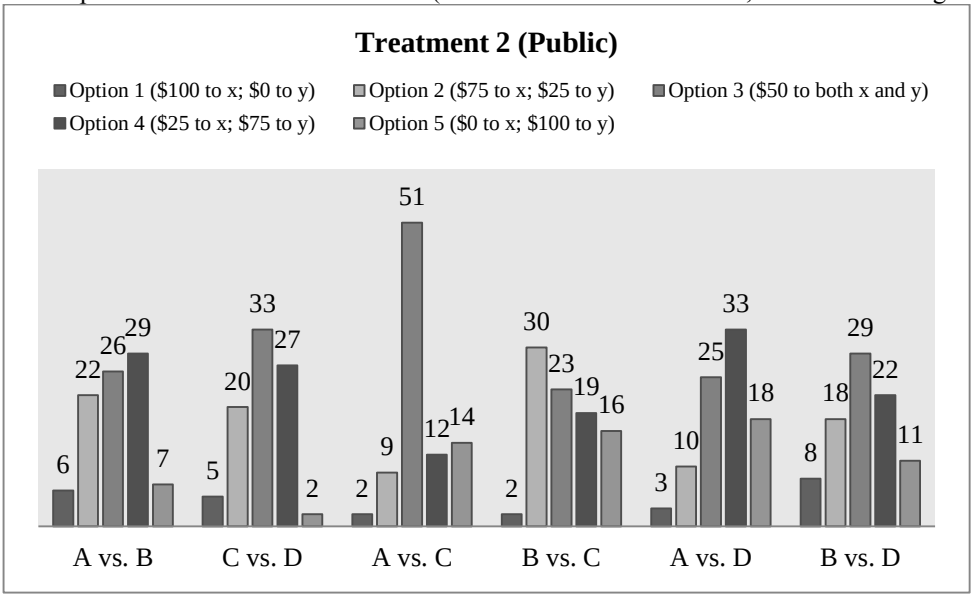


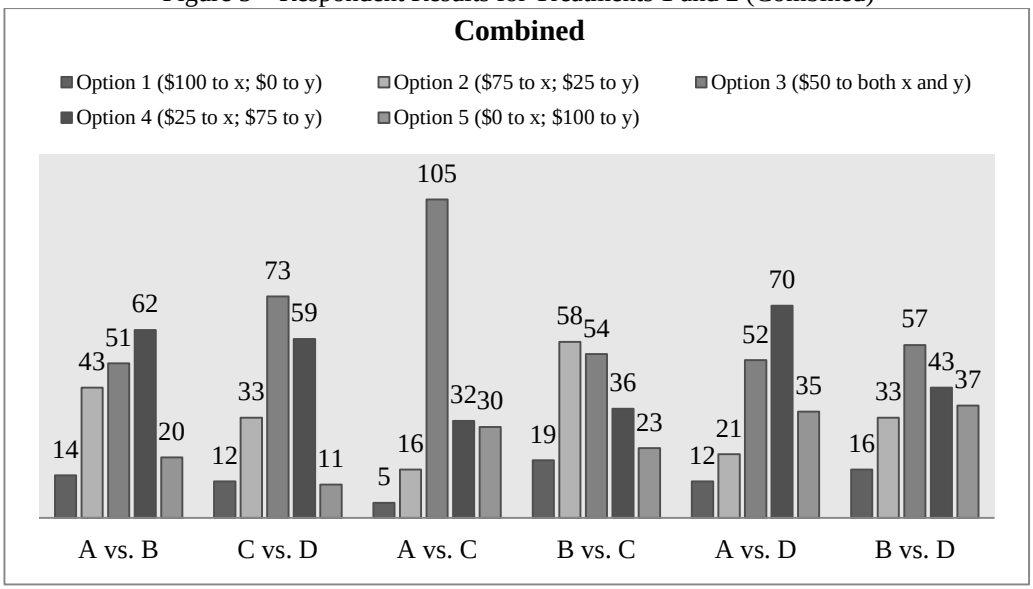
Figure 4 – Respondent Results for Treatment 2 (Allocation of 'Public' Funds, On Behalf of Organization)



It can be seen that the shape of the distributions in these two treatments are approximately the same, with the exception of the "B vs. C" and "B vs. D" allocations. In Treatment 1, the "B vs. C" allocation had the majority (31 of 100, 31%) of allocations made to Option 3 (50% to B, the educational community kitchen program, and 50% to C, the food assistance program in Ethiopia). In Treatment 2, the majority (30 of 90, 33%) of allocations were made to Option 2 (75% to B and 25% to C). The distribution of allocations for "B vs. C" in Treatment 1 is a more standard distribution across all five options, while in Treatment 2 the distribution is more heavily weighted toward Option 2. In regard to the "B vs. D" allocation, Treatment 1 has initiative D (the research and development project) receiving considerably more Option 5 (0% to B and 100% to D) allocations (26 of 98, 26.5%) than in Treatment 2, where initiative D only received 11 of 88 (12.5%) Option 5 allocations. The distributions of "B vs. D" are very similar across Option 1-4, with the only significant difference being the spike in allocations to Option 5 in Treatment 1. Overall, the distributions in all other cases were very similar in shape,

leading me to conclude that individuals who participated in this survey have similar preferences regardless of whether they are allocating public or private funds. As a result, I chose to combine the two groups for any future analysis. Figure 5 shows the two treatments combined and again we can see the shapes of the distributions are maintained.

Figure 5 – Respondent Results for Treatments 1 and 2 (Combined)



Using the combined responses for each option, I calculated the funds allocated to each initiative (Table 4). It can be seen that initiative D (the research and development project) received the largest amount of funds ($31,650) followed by initiative C, the food assistance program located in Ethiopia ($29,825), initiative A, the community food bank ($26,325) and finally initiative B, the educational community kitchen project ($25,400). Overall, the global initiatives D and C received the largest amount of funding in the allocation questions of the survey.

Table 4 – Funds Allocated to Initiatives by Respondents

Options	**A vs. B**		**C vs. D**		**A vs. C**		**B vs. C**		**A vs. D**		**B vs. D**	
	A	**B**	**C**	**D**	**A**	**C**	**B**	**C**	**A**	**D**	**B**	**D**
Option 1	1400	0	1200	0	1900	0	1200	0	500	0	1600	0
Option 2	3225	1075	2475	825	4350	1450	1575	525	1200	400	2475	825
Option 3	2550	2500	3650	3650	2700	2700	2600	2600	5250	5250	2850	2850
Option 4	1550	4650	1475	4425	900	2700	1750	5250	800	2400	1075	3225
Option 5	0	2000	0	1100	0	2300	0	3500	0	3000	0	3700
Total:	*8725*	*10275*	*8800*	*10000*	*9850*	*9150*	*7125*	*11875*	*7750*	*11050*	*8000*	*10600*
A Total: 26,325			**B Total: 25,400**				**C Total: 29,825**				**D Total: 31,650**	

5. Analysis

Based upon the funds allocated to each initiative, there appears to be a preference for globally focused projects amongst the respondents in this survey. In Table 5, I compared the funding allocations of the short-term (A and B) and long-term (C and D) initiatives. The research and development (R&D) project directed to Ethiopia (D) and the food assistance program (C) in Ethiopia received the first and second highest allocations, respectively, from the respondents, showing a preference for these types of global solutions over local ones. It can be seen in Table 5, that the combined allocations of initiatives C and D (59,075), the globally oriented initiatives, is higher than the combined allocations of the two local initiatives, A and B (49,425), confirming the preference for global solutions over local ones.

Table 5 – Long Term vs. Short Term Allocated Funding

N=all	**Short Term**		
Long Term		*A (Local Food Bank Program)*	*C (Global Food Assistance Program)*
	B (Local Educational Community Kitchen Project)	49,425	54,075
	D (Global Research and Development Project)	54,425	**59,075**

Additionally, the results of this survey do not appear to show significant effects of temporal discounting (Table 6), especially when it came to the global initiatives, where the long-term R&D project (D) received more funding than the short-term food assistance project (C). It can be seen in Table 6, that the long-term research and development project (D) and the local food bank (A) received the highest combined funding allocation (57,975). There is a possibility that temporal discounting played a stronger role in regard to the local projects, where the short-term food bank project (A) received more funding than the long-term educational community kitchen program (B), but this study is not able to make an assessment on what role this discounting played in the decision-making processes of the respondents. There is also a possibility the description of the educational community kitchen project (B) was not able to fully capture the connection education can play in increasing the food security of an individual or a community. In comparison to the food bank project (A), the way in which an initiative like project B promotes food security is much less obvious.

Table 6 – Global vs. Local Allocated Funding

N=all		**Global**	
Local		*C (Short-term Food Assistance Program)*	*D (Long-term Research and Development Project)*
	A (Short-term Food Bank Program)	56,150	**57,975**
	B (Long-term Educational Community Kitchen Project)	55,225	57,050

In order to verify the significance of the allocation of funds to each initiative, I conducted a Pearson's Chi-Squared test using the observed frequencies of each type of response, in each allocation pairing (Table 7). Using these frequencies I was able to create a set of expected frequencies (Table 8), which were then compared with the

observed frequencies in a Chi-squared test (Table 9). As a result of this test, I was able to reject the null hypothesis of respondents making their allocations purely by chance because the p-value of 0.000 (Table 9) confirms that the independence of the observed results is statistically significant.

Table 7 – Observed Frequencies of Respondent Allocations

Question	A vs. B	C vs. D	A vs. C	B vs. C	A vs. D	B vs. D	Grand Total:
Option 1 ($100 to x; $0 to y)	14	12	5	19	12	16	78
Option 2 ($75 to x; $25 to y)	43	33	16	58	21	33	204
Option 3 ($50 to both x and y)	51	73	105	54	52	57	392
Option 4 ($25 to x; $75 to y)	62	59	32	36	70	43	302
Option 5 ($0 to x; $100 to y)	20	11	30	23	35	37	156
Grand Total:	190	188	188	190	190	186	

Table 8 – Expected Frequencies of Respondent Allocations

Question	A vs. B	C vs. D	A vs. C	B vs. C	A vs. D	B vs. D	Grand Total:
Option 1 ($100 to x; $0 to y)	13.09	12.95	12.95	13.09	13.09	12.82	78
Option 2 ($75 to x; $25 to y)	34.24	33.88	33.88	34.24	34.24	33.52	204
Option 3 ($50 to both x and y)	65.80	65.10	65.10	65.80	65.80	64.41	392
Option 4 ($25 to x; $75 to y)	50.69	50.16	50.16	50.69	50.69	49.62	302
Option 5 ($0 to x; $100 to y)	26.18	25.91	25.91	26.18	26.18	25.63	156
Grand Total:	190	188	188	190	190	186	

Table 9 – Pearson's Chi-Squared Test Results (Observed Frequencies)

	Chi-Squared Value	Degrees of Freedom	p-value (<0.05)
Pearson's Chi-Square Test	118.71	20	**0.000**

I then conducted a series of cross-tabulations with response type and the demographic information for the respondents. In these calculations, I excluded responses from individuals who did not provide demographic information (12 individuals), or declined to answer the particular demographic question. In this analysis, I was most interested in the type of allocations participants chose (Options 1-5) and as a result combined all twelve allocations made by each respondent into one category. As part of this research I cross-tabulated all of the demographic information provided by respondents with their response types, but I have only included those, which are

statistically significant and/or particularly interesting to the topics of this research. Cross-tabulations regarding level of education, level of employment and age indicated no statistically significant results. Additionally, the number of non-Canadian born and immigrant respondents were too small to conduct any statistical testing.

Table 10 – Cross-tabulation of Interest in Food Security Issues and Response Type (n = 1059)

			Responses					
			Option 1 (100% to x; 0% to y)	**Option 2 (75% to x; 25% to y)**	**Option 3 (50% to both x & y)**	**Option 4 (25% to x; 75% to y)**	**Option 5 (0% to x; 100% to y)**	**Total**
Interested in Food Security Issues?	**Yes (1)**	*Count*	34	161	305	274	118	892
		% of Total	3.2%	15.2%	28.8%	25.9%	13.2%	84.2%
		% of Yes	3.8%	18.0%	34.2%	30.7%	11.1%	100%
		Standard Residual (> +/- 1.96)	**-1.9**	0.6	-0.4	-0.4	-1.1	
	No (2)	*Count*	22	22	66	20	37	167
		% of Total	2.1%	2.1%	6.2%	1.9%	3.5%	15.8%
		% of No	13.2%	13.2%	39.5%	12.0%	22.2%	100%
		Standard Residual (> +/- 1.96)	**4.4**	-1.3	1.0	**-3.9**	**2.5**	

Table 11 – Pearson's Chi-Squared Test Results (Interest vs. Response Type)

	Value	**Degrees of Freedom**	**p-value (<0.05)**
Pearson's Chi-Square Test	51.845	4	**0.000**

As a result of a cross tabulation of stated interest in food security issues (Table 10) I rejected the null hypothesis (p value = 0.000) that an interest in food security issues played no role in the type of responses individuals would make (Table 11) using a chi

squared test. Individuals who stated they had no interest in food security tended to choose the more extreme options of 1 (100% to *x* and 0% to *y*) and 5 (0% to *x* and 100% to *y*) more than those who expressed interest in food security. The lack of interest expressed by these individuals could mean that they were more willing to take more risk by giving 100% of their funding to one initiative over the other. Individuals who hold a stated interest in food security may have more substantial background knowledge regarding the type of solutions proposed and their merits, making them less willing to have a strong reaction against one or two particular initiatives.

Table 12 – Cross-tabulation of Gender and Response Type in Allocations (n = 1039)

			Responses					Total
			Option 1 (100% to x; 0% to y)	**Option 2 (75% to x; 25% to y)**	**Option 3 (50% to both x & y)**	**Option 4 (25% to x; 75% to y)**	**Option 5 (0% to x; 100% to y)**	
Gender	**Male (1)**	*Count*	35	92	127	124	94	472
		% of Total	3.4%	8.9%	12.2%	11.9%	9.0%	45.4%
		% of Gender	7.4%	19.5%	26.9%	26.3%	19.9%	100%
		Standard Residual (> +/- 1.96)	**2.0**	1.0	**-3.0**	-0.4	**2.9**	
	Female (2)	*Count*	20	90	238	159	60	567
		% of Total	1.9%	8.7%	22.9%	15.3%	5.8%	54.6%
		% of Gender	3.5%	15.9%	42.0%	28.0%	10.6%	100%
		Standard Residual (> +/- 1.96)	-1.8	-0.9	**2.8**	0.4	**-2.6**	

When cross-tabulating gender (Table 12), using a chi squared test, I was able to reject a null hypothesis (p value = 0.000) that gender played no role in the type of responses individuals would make (Table 13). Female respondents tended to choose option 3 (50% to both *x* and *y*) more than their male counterparts and male respondents were more likely to choose options 1 (100% to *x* and 0% to *y*) and 5 (0% to *x* and 100% to *y*) than female respondents. There could be a number of reasons for this, such as the female respondents may have been more interested in a compromise position in which all of the initiatives received the same amount of funding, given the options were presented as being about equally cost effective, or they may have been more adverse to the risk of putting all of their funding with one initiative.

Table 13 – Pearson's Chi-Squared Test Results (Gender vs. Response Type)

	Value	**Degrees of Freedom**	**p-value (<0.05)**
Pearson's Chi-Square Test	41.354	4	**0.000**

Limitations

As with any research that involves human subjects, it is important to keep in mind the limitations of drawing inferences. The respondents in this research are younger, more female and more highly educated than the general population and these differences may have made a difference in the results of this study. It is possible that those who are more highly educated (Bachelors' and Masters' degrees) or younger individuals may have more awareness of the benefits of research and development projects like the one presented in initiative D. As a result, initiative D may have fared better in this survey than it would in a more representative or larger sample. Additionally, it is possible that the

results of this study may have been influenced by factors beyond the frames that were the focus of this study and were not measured such as personal familiarity with food insecurity or the political or ideological views of the respondents. Furthermore, although the results of this survey are statistically significant, this research would have benefited by a larger sample making the statistical testing more rigorous.

If this study were to be repeated there are a number of variables that could be changed or created to give us a better understanding of how and why particular decisions are being made. Firstly, it would be interesting to observe the amount of time individual respondents spent on each allocation; this variable may give us insight into which decision pairings were more difficult to choose between as well as whether the respondents were exhibiting intuitive or analytical decision-making behaviour. Additionally, it would be interesting to replace the educational community kitchen program (initiative B) with a program that would have a more obvious connection to increased food security. It is possible that one of the reasons that initiative B received the least amount of funding is because it was difficult for respondents to understand how education can promote food security.

6. Conclusion

The issue of food security, especially when it comes to ongoing food insecurity within Canadian communities, has on the whole failed to get on the public and government agenda. This research proposes that this failure is a result of how the problem has been understood by the general public and decision-makers. The framing of any policy

problem can potentially impact the debate surrounding the issue as well as the types of solutions that are favoured by the public and decision-makers, the issue of food security is no different in this regard. The problem of food insecurity appears to have the additional challenge of multiple paradigms or frames that can be employed to describe multiple interrelated problems that result in a state of food insecurity, such as access, poverty, and education, both locally and globally. These framings can have a significant influence on how we perceive how food insecurity manifests in our local communities and abroad, as either problems that require short-term emergency intervention or problems that require long-term integrated strategies. As a result, we may employ solutions that are not able to address all facets of the problem.

The results of the decision-making experiment in this research project suggest an overall preference for initiative D, a research and development project based in Ethiopia, although all four of the project presented received funding from the respondents. Furthermore, the results of the survey demonstrated a preference for globally oriented projects over projects based within a local community. I would argue that this preference might be a result of how individuals understand the problem of food insecurity, especially chronic food insecurity. When individuals think about food insecurity and hunger, it is not difficult for us to think of images we have seen in the media, depicting starving children in African countries. These images, in addition to other kinds of media coverage, activism and public policy, have potentially exotified the issue of chronic hunger as a problem that occurs in countries other than Canada and in the developed world more generally. On the other hand, in many Canadian cities, food banks are often seen as the first and best way of addressing the problem of food insecurity and hunger within our

local communities. This is particularly problematic given that food banks and other similar organizations are often only able to address the symptoms of food insecurity and are only able to do so in a very temporary way. These results were counter to my initial hypothesis, which expected individuals to choose local initiatives over global projects. It seems that when we think about food insecurity we think of others first and ourselves second.

Additionally, the results of this survey offered no significant evidence for the impacts of temporal discounting, which was in opposition to my initial hypothesis, which proposed that individuals would choose short-term solutions over long term ones in all cases. The fact that individuals chose the long-term solution when it came to global initiatives, but chose the short-term solution out of the local ones, may give us more insight into how individuals think hunger is manifested within different contexts. We associate food insecurity in the developing world with famine, and ongoing development challenges such as lack of access to adequate water and healthcare. These problems require ongoing support and solutions with long-term outcomes in mind. As a result, a research and development project with goals of increasing both household income and food security may be preferable to a project that simply provides adequate nutrition to school children. On the other hand, when we think about food insecurity in our own communities, we see it less as a failing of a larger system and more as a temporary crisis that can be addressed with temporary support from organizations like food banks. Perhaps, there is an assumption that people become food insecure in Canadian communities because of a job loss or a family crisis, not because of a lack of access to affordable, nutritious food. This understanding of food insecurity may result in a

perception that food insecurity is not a intrinsically exciting" problem (Downs 2001, 41) or that the changes needed to address this problem are simply too difficult. Potential future research may wish to explore if it is possible to make these local and more familiar solutions more "exciting" and thus a more appealing option to respondents.

The key challenge of ongoing food insecurity, both at home and abroad, is that it tends to be part of a larger bundle of interrelated problems that are not easy to address without significant changes in public policy and general attitudes. The results of this study suggests that amongst the individuals surveyed there may be a mental disconnect between how hunger manifests in the developing world and how and why is occurs in Canada. The globalization of concern and resources to address food insecurity is a positive development for individuals struggling in the developing world, but it is possible that this has allowed us to ignore the very real challenges being faced by many Canadians. This research potentially indicates that governments can and should continue to find avenues to promote research and development projects in chronically food-insecure regions of the world, especially those that may help to address some of the underlying factors that worse food insecurity such as increasing household income. These projects are often very cost effective and can have significant benefits beyond the term of the project. Additionally, research and development projects may even have to potential to not only increase economic, educational and healthcare outcomes but may also allow developing countries to be more involved in international affairs and increase their security.

At the same time, organizations that are concerned with addressing the needs of the chronically food-insecure in our own communities may need to find new ways of

communicating how their projects promote food security. These longer-term projects have many of the same potential benefits when it comes to educational, economic, healthcare and social outcomes, but it appears more difficult for these projects to communicate these benefits. None of this is to say that governments should actively choose local projects over global ones or vice versa, as there are national interests that are served through both kinds of initiatives, but for organizations of all types seeking government funding it is crucial to communicate how their projects decrease food insecurity. The results of the survey may indicate that some organizations (i.e. globally oriented) are finding more success in communicating the potential benefits of their programs than others (i.e. locally oriented). Ultimately, this research demonstrates that in order to promote food security in Canada, there may need to be a significant problem reframing to elevate the suffering of food insecure Canadians to the level of food insecure individuals in other parts of the world.

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Appendices

Appendix A - Survey Questions

The Globalization of Food Security: The role of preferences and nudges in framing the food security agenda

Page 1

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Consent Form

The study in which you are invited to participate concerns how people make decisions. You will be asked to allocate funding between a series of different food security initiatives. In each question you will be able to allocate funding between the two options. Additionally, you will be asked a series of skill-testing questions. Finally, you will be asked to answer a series of demographic questions.

Participation in this study is voluntary, and will take approximately 15 to 20 minutes of your time in total. By participating in this study, you will learn about research in decision-making in general and the topic of this study in particular. In addition, you will receive a detailed debriefing form about the study. There are no known or anticipated risks associated to participation in this study. You may decline to answer any questions presented during the study or to take part in any portion of the tasks if you so wish. Further, you may decide to withdraw from this study at any time, for any reason, and without penalty of any sort by closing the survey window. Following the completion of the task you will be presented with information discussing the study, as well as potential contacts if you have any questions.

All information that you provide is considered completely confidential; indeed your name will not be included, or in any other way associated, with the data collected in the study. Furthermore, the interest of this study is in the average responses of the entire group of participants. Because you may have been referred to this study through individuals outside of the reasearch team, there is potential for you to be identified as part of a particular group of participants but you will not be identified individually in any way in any written reports of this research. This survey is hosted by Fluid Survey, a USA owned company, see the following for more information on Fluid Survey Data Privacy in Canada. Electronic data will be stored on secure University of Saskatchewan servers, and deleted after five years.

This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca 306-966-2975. Out of town participants may call toll free 888-966-2975. **By selecting "I agree to participate", you are indicating that you understand the above conditions of participation in this study.**

Do you agree to participate in this study?

- ○ I agree to participate
- ○ I do not agree to participate

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Imagine that you have been given $100.00 to a project, which is focused on addressing food security. Please allocate this donation between the two options in each question. You may donate all to one or share your $100.00 between the two options but you must allocate all $100.00.

Project A

Project A collects monetary donations, which are used to purchase, and then distribute this food to needy individuals who request food hampers, within your community. The project is able to purchase $2.50 worth of food with each $1 donation because of bulk purchasing and special arrangements with food distributors. Both perishable food and non-perishable food are provided through the food hampers. The project is managed and delivered primarily through volunteers who contribute thousands of hours to the project. Individuals who access this project are typically low-income individuals and families with children. Over 1 year, $1,000,000 would be able to provide food hampers to 50,000 individuals.

Project B

Project B is an educational program in your community offered through cooking classes that focus on safe cooking practices, nutrition and budget friendly menu planning. The cooking space and supplies are provided by the project. Meals that are prepared in the classes are shared amongst the participants and leftovers are packaged and given to participants to take home. Participants in the program are more likely to meet nutritional requirements for fruits, vegetables and whole grains. Additionally, participants improve their cooking skills and are better able to prepare healthy and budget-friendly meals for their families. With a budget of $1,000,000 over 5 years the project would be able to have between 50,000 and 85,000 individuals participate in the program.

Please allocate your $100 between the two options:

$100 to Project A, $0 to Project B	$75 to Project A, $25 to Project B	$50 to both Project A and B	$25 to Project A, $75 to Project B	$0 to Project A, $100 to Project B

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Imagine that you have been given $100.00 to a project, which is focused on addressing food security. Please allocate this donation between the two options in each question. You may donate all to one or share your $100.00 between the two options but you must allocate all $100.00.

Project C

Project C distributes nutritious food to children attending school in a sub-Saharan African country. This country is one of the poorest in the world with around 10% of the population at risk of starvation every year. Rural families in this country rely on small subsistence farms to provide food but due to several factors families are often unable to meet their needs. The project focuses on providing nutritionally and calorically dense meals to the children who attend school each day. These meals are prepared with the intention of battling malnutrition and to encourage weight gain. The project is able to access more than one thousand rural schools in the region. With a budget of $1,000,000 over 1 year, this project would be able to feed 50,000 children attending school.

Project D

Project D is a research project with the goal of developing a new variety of chickpea to be grown in a sub-Saharan African country. This new variety would produce higher yields and would have a higher concentration of nutrients such as iron and protein. Rural families in this country rely on small subsistence farms to provide food. A higher yielding and more nutritious chickpea would allow families to produce food for themselves as well as excess chickpeas that could be sold at the local market, thus increasing the annual income of each family. At the end of the funding term ($1,000,000 over 5 years), the research team hopes to distribute the new variety to 18,000 households in the Southern region of the country, benefiting between 50,000 and 85,000 individuals.

Please allocate your $100 between the two options:

$100 to Project C, $0 to Project D	$75 to Project C, $25 to Project D	$50 to both Project C and D	$25 to Project C, $75 to Project D	$0 to Project C, $100 to Project D

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Imagine that you have been given $100.00 to a project, which is focused on addressing food security. Please allocate this donation between the two options in each question. You may donate all to one or share your $100.00 between the two options but you must allocate all $100.00.

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Please allocate your $100 between the two options:

$100 to Project C, $0 to Project A	$75 to Project C, $25 to Project A	$50 to both Project C and A	$25 to Project C, $75 to Project A	$0 to Project C, $100 to Project A

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Page 5

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Please allocate your $100 between the two options:

$100 to Project C, $0 to Project B	$75 to Project C, $25 to Project B	$50 to both Project C and B	$25 to Project C, $75 to Project B	$0 to Project C, $100 to Project B

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Page 6

Imagine that you have been given $100.00 to a project, which is focused on addressing food security. Please allocate this donation between the two options in each question. You may donate all to one or share your $100.00 between the two options but you must allocate all $100.00.

Project D

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Please allocate your $100 between the two options:

$100 to Project D, $0 to Project A	$75 to Project D, $25 to Project A	$50 to both Project D and A	$25 to Project D, $75 to Project A	$0 to Project D, $100 to Project A

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Imagine that you have been given $100.00 to a project, which is focused on addressing food security. Please allocate this donation between the two options in each question. You may donate all to one or share your $100.00 between the two options but you must allocate all $100.00.

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Please allocate your $100 between the two options:

$100 to Project B, $0 to Project D	$75 to Project B, $25 to Project D	$50 to both Project B and D	$25 to Project B, $75 to Project D	$0 to Project B, $100 to Project D

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Please do you best to answer the follow skill-testing questions:

Which of the following numbers represents the biggest risk of getting a disease?

- 1 in 100
- 1 in 1,000
- 1 in 10

If Person A's chance of getting a disease is 1 in 100 in ten years, and Person B's risk is double that of A, what is B's risk?

Type here

If Person A's risk of getting a disease is 1% in ten years, and Person B's risk is double that of A's, what is B's risk?

Type here

Imagine that we roll a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up even (2, 4, or 6)?

Type here

If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 100?

Type here

If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1,000?

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Type here

If the chance of getting a disease is 20 out of 100, this would be the same as have a ___% chance of getting the disease.

Type here

In the BIG BUCKS LOTTERY, the chances of winning a $10.00 prize are 1%. What is your best guess about how many people would win a $10.00 prize if 1,000 people each buy a single ticket from BIG BUCKS?

Type here

In the ACME PUBLISHING SWEEPSTAKES, the chance of winning a car is 1 in 1,000. What percent of tickets of ACME PUBLISHING SWEEPSTAKES win a car?

Type here

Which of the following represents the biggest risk of getting a disease?

- 1%
- 10%.
- 5%

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Imagine that you hold a position on the Funding Allocation Committee of an institution. The mandate of the committee is to provide funding to project focused on addressing the issue of food security. The committee has a budget of $10,000.00 to allocate between a number of options. Please allocate this funding between the two options in each question. You may donate all to one or share your $10,000.00 between the two options but you must allocate all $10,000.00.

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Please allocate your $10,000 between the two options:

$10,000 to Project B, $0 to Project D	$7,500 to Project B, $2,500 to Project D	$5,000 to both Project B and D	$2,500 to Project B, $7,500 to Project D	$0 to Project B, $10,000 to Project D

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Page 10

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$10,000 to Project A, $0 to Project B	$7,500 to Project A, $2,500 to Project B	$5,000 to both Project A and B	$2,500 to Project A, $7,500 to Project B	$0 to Project A, $10,000 to Project B

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Please allocate your $10,000 between the two options:

$10,000 to Project C, $0 to Project D	$7,500 to Project C, $2,500 to Project D	$5,000 to both Project C and D	$2,500 to Project C, $7,500 to Project D	$0 to Project C, $10,000 to Project D

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Page 12

Imagine that you hold a position on the Funding Allocation Committee of an institution. The mandate of the committee is to provide funding to project focused on addressing the issue of food security. The committee has a budget of $10,000.00 to allocate between a number of options. Please allocate this funding between the two options in each question. You may donate all to one or share your $10,000.00 between the two options but you must allocate all $10,000.00.

Project A

Project A collects monetary donations, which are used to purchase, and then distribute this food to needy individuals who request food hampers, within your community. The project is able to purchase $2.50 worth of food with each $1 donation because of bulk purchasing and special arrangements with food distributors. Both perishable food and non-perishable food are provided through the food hampers. The project is managed and delivered primarily through volunteers who contribute thousands of hours to the project. Individuals who access this project are typically low-income individuals and families with children. Over 1 year, $1,000,000 would be able to provide food hampers to 50,000 individuals.

Project C

Project C distributes nutritious food to children attending school in a sub-Saharan African country. This country is one of the poorest in the world with around 10% of the population at risk of starvation every year. Rural families in this country rely on small subsistence farms to provide food but due to several factors families are often unable to meet their needs. The project focuses on providing nutritionally and calorically dense meals to the children who attend school each day. These meals are prepared with the intention of battling malnutrition and to encourage weight gain. The project is able to access more than one thousand rural schools in the region. With a budget of $1,000,000 over 1 year, this project would be able to feed 50,000 children attending school.

Please allocate your $10,000 between the two options:

$10,000 to Project A, $0 to Project C	$7,500 to Project A, $2,500 to Project C	$5,000 to both Project A and C	$2,500 to Project A, $7,500 to Project C	$0 to Project A, $10,000 to Project C

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Imagine that you hold a position on the Funding Allocation Committee of an institution. The mandate of the committee is to provide funding to project focused on addressing the issue of food security. The committee has a budget of $10,000.00 to allocate between a number of options. Please allocate this funding between the two options in each question. You may donate all to one or share your $10,000.00 between the two options but you must allocate all $10,000.00.

Project B

Project B is an educational program in your community offered through cooking classes that focus on safe cooking practices, nutrition and budget friendly menu planning. The cooking space and supplies are provided by the project. Meals that are prepared in the classes are shared amongst the participants and leftovers are packaged and given to participants to take home. Participants in the program are more likely to meet nutritional requirements for fruits, vegetables and whole grains. Additionally, participants improve their cooking skills and are better able to prepare healthy and budget-friendly meals for their families. With a budget of $1,000,000 over 5 years the project would be able to have between 50,000 and 85,000 individuals participate in the program.

Project C

Project C distributes nutritious food to children attending school in a sub-Saharan African country. This country is one of the poorest in the world with around 10% of the population at risk of starvation every year. Rural families in this country rely on small subsistence farms to provide food but due to several factors families are often unable to meet their needs. The project focuses on providing nutritionally and calorically dense meals to the children who attend school each day. These meals are prepared with the intention of battling malnutrition and to encourage weight gain. The project is able to access more than one thousand rural schools in the region. With a budget of $1,000,000 over 1 year, this project would be able to feed 50,000 children attending school.

Please allocate your $10,000 between the two options:

$10,000 to Project B, $0 to Project C	$7,500 to Project B, $2,500 to Project C	$5,000 to both Project B and C	$2,500 to Project B, $7,500 to Project C	$0 to Project B, $10,000 to Project C

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Imagine that you hold a position on the Funding Allocation Committee of an institution. The mandate of the committee is to provide funding to project focused on addressing the issue of food security. The committee has a budget of $10,000.00 to allocate between a number of options. Please allocate this funding between the two options in each question. You may donate all to one or share your $10,000.00 between the two options but you must allocate all $10,000.00.

Project A

Project A collects monetary donations, which are used to purchase, and then distribute this food to needy individuals who request food hampers, within your community. The project is able to purchase $2.50 worth of food with each $1 donation because of bulk purchasing and special arrangements with food distributors. Both perishable food and non-perishable food are provided through the food hampers. The project is managed and delivered primarily through volunteers who contribute thousands of hours to the project. Individuals who access this project are typically low-income individuals and families with children. Over 1 year, $1,000,000 would be able to provide food hampers to 50,000 individuals.

Project D

Project D is a research project with the goal of developing a new variety of chickpea to be grown in a sub-Saharan African country. This new variety would produce higher yields and would have a higher concentration of nutrients such as iron and protein. Rural families in this country rely on small subsistence farms to provide food. A higher yielding and more nutritious chickpea would allow families to produce food for themselves as well as excess chickpeas that could be sold at the local market, thus increasing the annual income of each family. At the end of the funding term ($1,000,000 over 5 years), the research team hopes to distribute the new variety to 18,000 households in the Southern region of the country, benefiting between 50,000 and 85,000 individuals.

Please allocate your $10,000 between the two options:

$10,000 to Project A, $0 to Project D	$7,500 to Project A, $2,500 to Project D	$5,000 to both Project A and D	$2,500 to Project A, $7,500 to Project D	$0 to Project A, $10,000 to Project D

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Please answer the following demographic questions (Keep in mind that all responses are anonymous):

What is your age?

- Under 18 years old
- 18 to 25 years old
- 26 to 35 years old
- 36 to 45 years old
- 46 to 56 years old
- 56 to 65 years old
- 66 years old or older

What is your gender?

- Male
- Female
- Other
- Prefer to not say

What country were you born in?

Type here

How long have you resided in Canada?

- All of my life

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- ○ Less than 5 years
- ○ 5 to 15 years
- ○ More than 15 years
- ○ I do not currently reside in Canada

What is the highest degree or level of school you have completed?

- ○ Less than high school diploma
- ○ High school diploma or GED
- ○ Some college, but no degree or diploma
- ○ College diploma
- ○ Bachelor's degree (BA, BSc, BEng, etc.)
- ○ Master's degree (MA, MSc, etc.)
- ○ Professional degree (MD, JD, MBA, etc.)
- ○ Doctorate (PhD, EdD, etc.)

What is your current employment status?

- ○ Full-time employment
- ○ Part-time employment
- ○ Unemployed/Looking for work
- ○ Unemployed/Not looking for work
- ○ Full-time student
- ○ Retired
- ○ Other, please specify... Type here

Would you agree with the following statement? “I am interested in issues related to food security.”

Yes No

Do you donate to, volunteer with or are employed by an organization that is involved in food security related issues? (example: Food Bank, Community Garden etc.)

- No
- Yes, I am a donor
- Yes, I am a volunteer
- Yes, I am an employee
- Other (please specify) Type here

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Debriefing Form

Thanks for taking the time to participate in our study! Research like this depends on participation by individuals like you. We are very grateful for your help.

The purpose of this research project is to understand the impact of local, global and temporal characteristics on decision making when it comes to the problem of food insecurity. The responses from this survey will be examined to determine if participants displayed preferences regarding the location or length of the four projects. These characteristics are representative to two separate ways of addressing food insecurity, the first being globally integrated strategies and the second are local, context dependent projects that focus primarily on self-sufficiency. The divergence between policy that attempts to address complex global issues through integrated global solutions and solutions that strive for local self-sufficiency is one that exists across policy spaces. Although this research with focus on how this apparent dichotomy influences decision making in the food security space, the preferences that may be revealed through this research would be valuable to consider in all policy areas. If you have any questions about this study please contact one of the researchers listed above.

We would like to remind you that all information that you have provided is considered confidential, your name will not be included or in any other way associated with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written reports of this research. Electronic data will be stored on secure University of Saskatchewan servers, and will be deleted after five years.

Would you please do us a favour and not tell others about the details of the study, so that they will not know more about it than you did when you took part? It is important that participants be unaware of our hypothesis. Again, thanks a lot for helping out!

This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca 306-966-2975. Out of town participants may call toll free 888-966-2975.

Appendix B – Survey Data

Participant number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agree or Disagree (A=1 D=2)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AvsB1	2	4	2	4	4	3	2	4	3	2	2	5	2	4	4	3
CvsD1	3	3	3	4	4	3	3	2	5	3	5	4	1	4	2	3
AvsC1	4	3	3	4	3	2	5	3	5	5	2	5	2	3	4	5
BvsC1	5	3	4	4	3	2	5	3	5	5	3	3	2	2	4	5
AvsD1	4	2	4	4	3	2	5	3	5	4	1	5	1	4	3	5
BvsD1	5	3	4		3	2	4	2	5	5	5	3	1	3	3	5
BvsD2	3	4	2		3	4	1	3	5	4	4	4	2	3	3	1
AvsB2	1		4	4	3	3	3	2	3	3	4	5	3	2	4	3
CvsD2	3	3	3		4	3	2	3	1	3	4	4	2	2	2	3
AvsC2	5	3	4	4	3	2	4	3	5	3	3	5	2	3	4	5
BvsC2	5	2	3	2	3	2	5	2	5	4	3	4	2	4	3	5
AvsD2	5		3	4	4	2	4	4	5	3	4	5	2	4	3	5
Age	3	4	2	2	3	3	2	3	3	2	2	3	2	3	2	3
Gender	1	2	2	2	1	1	1	2	1	2	2	1	1	1	2	1
Place of Birth	England	Canada	Canada	Canada	UK	Canada	Canada	Canada	Canada	Ukraine	Canada	Canada	Canada	Canada	Canada	Canada
How long have you resided in Canada?	4	1	1	1	2	4	1	1	1	2	1	1	1	1	1	1
Education	5	6	5	6	5	6	5	6	5	5	5	5	5	5	5	5
Employment	5	1	1	1	4	1	5	1	1	5	5	1	1	5	5	5
Employment status (other)																
Food Security (Y =1 N =2)	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1
Donate, volunteer, employed?	1	1	1	2	1	2	1		1	1	1	1		1	1	2
Donate, volunteer, employee (other)																

17	1	2	4	3	4	5	5	5	1	2	4	5	5	2	1	Canada	1	5	5		2		
18	1	4	4	3	2	4	4	3	2	2	3	2	4	3	2	Barbados	3	5	1		1	1	
19	1	3	3	5	3	3	5	3	5	3	3	3	3	3	2	Canada	1	5	1		2		
20	1	4	4	3	3	3	2	3	4	3	3	2	3	4	2	ireland	3	7	1		1	2	
21	1	4	4	3	2	4	4	2	4	4	3	2	4	2	2	Canada	1	5	5		1	1	
22	1	3	2	3	4	3	2	2	3	2	3	3	3	2	1	INDIA	2	6	5		1	3	
23	1	5	3	3	2	4	3	3	4	4	3	2	4	5	2	Canada	1	6	1		1	2	
24	1	2	4	3	4	3	4		4			4	5	3	1	Canada	1	7	1		1	1	
25	1	2	2	3	3	3	5	2	3	3	2	2	2	3	1	Canada	1	7	1		1	1	
26	1	4	4	4	3	4	4	4	2	4	4	4	4	5	1	Canada	1	7	1		1	4	I am a Founder
27	1	3	3	3	4	4	4																
28	1	1	1	3	5	1	1	2	2	2	3	4	1	3	1		4	6	1		1	1	
29	1	4	5	4	4	4			4	2		4		4	1	Canada	1	7	1		1	3	
30	1	5	1	5	1	5	1																
31	1	4	4	3	2	4	3	3	4	4	3	2	4	3	1	Canada	1	6	1		1	4	
32	1	1	1	3	5	1	2						2										
33	1	1	4	4	5	5	5	5	1	4	5	5	5	3	1	Canada	1	6	5		1	5	I am a food security researcher partnered with food security organizations
34	1	3	3	3	3	5	5	5	3	3	5	5	5	3	2	Canada	1	7	1		2		
35	1	2	4	4	4	4	4	4	2	4	4	4	4	4	1	Jamaica	2	5	1		1	1	
36	1	3	3	4	3	2	2	4	3	4	3	2	2	3	2	china	3	6	1		1	3	
37	1	4	3	5	4	4	4																
38	1	4	4	4	4	5	5	2	3	2	5	4	5	3	1	Canada	4	6	2		1	3	
39	1	4	4	3	2	4	3	2	4	4	2	2	4	4	1	Nigeria	2	7	5		1	5	Worked with a development partner
40	1	2	4		4	4	4	4	4	4	3	4	5	3	2	Brazil	2	6	1		1	1	
41	1	4	5	1	2	1	5	5	3	5	1	1	5	3	1	Canada	1	5	5		1	1	
42	1	3	3	3	4	4	3	3	2	3	3	4	4	3	2	Canada	4	5	5		1	1	

43	1	3	3	4	4	4	5																	
44	1	3	1	3	3	1	1	1	3	1	3	3	1	4	2	Canada	1	5	1		2		
45	1	4	4	3	4	3	3	2	1					3	4		3	5	5		1	2	
46	1	1	3	3	5	1	5	1	1	3	3	5	3	2	2	Bangladesh	2	5	2		2		
47	1	2	4	5	5	5	5	1	3	2	5	5	5	4	1	Canada	1	5	1		2		
48	1	1	3	1	3	2	3	3	3	3	3	3	3	3	1	Canada	1	5	5		1	2	
49	1	1	2	3	5	4	5																
50	1	3	1	3	3	1	1	1	3	1	3	3	1	2	1	Nigeria	3	5	1		2		
51	1	1	3	3	5	3	5	5	1	3	3	5	3	2	2	China	2	5	5		1	1	
52	1	3	3	4	4	4	4	4	3	3	4	4	4	5	2	Canada	1	6	5		1	2	
53	1	1	5	2	5	3	5	1	5	1	3	5	3	3	1	canada	1	5	1		1	5	i support through purchasing items recruiting volunteers
54	1	3	4	3	3	4	4	5	2	4	3	5	4	2	2	China	2	6	5		1	2	
55	1	5	4	5	3	5	4	4	5	4	1	3	5	3	2	Canada	1	6	5		1	1	
56	1	4	3	3		4	4	4	4	4	3	3	4	6	2	Canada	1	6	1		1	3	
57	1	5	2	4	4	2	3	2	3	4	5	4	3	3	2	United States	2	6	1		1		
58	1	4	4	4	3	2	2	3	4	3	3	2	3	4	2	Canada	1	5	2		1	5	Both in the past.
59	1	5	5	3	2	4	3	4	4	4	3	2	4		4	Canada	4	3	1		1	5	
60	1	5	5	5	5	5	5	5	5	3	5	3	5	7	1	Canada	1	8	7	Self employed	1	2	
61	1	5	4	4	4	5	4	4	4	3	5	5	5	6	2	Canada	1	2	7	self employed farmer	1	5	i am a doner and a volunteer and I farm sustainably
62	1	5	3	5	1	3	1	3	5	3	5	3	5	5	1	Canada	1	7	1		1	1	
63	1	4	5	3	2	4	4	3	4	4	4	2	4	4	1	canada	4	6	1		1	3	
64	1	3	3		4	3	5	2	2	3		4	3	2	2	Holland	4	2	5		1	3	
65	1	2	2	3	4	3	3				3												
66	1	4	3	4	3	4	2																
67	1	3	2	3	3	2	2	3	4	3	3	2	4	4	1	Canada	1	6	1		1	2	

68	1	4	3	4	3	4	4	4	2	4	3	3	4	7	2	Canada	1	5	6		1	2	
69	1	4	4	3	1	4	3	3	4	4	3	2	4	6	2	Canada	1	5	1		1	2	
70	1	4	2	5	5	5	5	1	4		5	5	5	6	1	Canada	1	7	6		2		
71	1	4	4	3	2	3	3	3	2	2	3	2	4	3	2	Canada	1	6	7	Maternity Leave	1	3	
72	1	3	2	4	4	2	3	3	3	2	4	4	3	7	1	Canada	1	5	6		1	2	
73	1	2	3	3	3	4	4	2	4	3	3	5	4	6	4	USA	4	8	1		1	1	
74	1	2	3	3	5	3	5	4	2	2	3	2	3	3	2	Canada	1	5	1				
75	1	2	3	3	3	3	2	2	3	2	3	3	4	6	1	Canada	1	6	1		2		
76	1	4	3	3	2	3	2	4	3	2	3	3	3	4	1	United States	2	8	1		1	2	
77	1	4	3	4	2	4	2	4	4	3	2	2	3	6	2	Canada	4	6	7	home with cancer, going back to work	2		
78	1	3	3	3	3	3	3	3	3	3	3	3	3	5	2	Canada	1	4	1		1	3	
79	1	3	4	3	3	3	2	3	4	4	3	2	3	5	2	canada	1	4	2		1	3	
80	1	5	5	5	1	5	5	4	4	4	5	2	4	6	2	Canada	1	3			1	2	
81	1	3	3	3	4	3	5	2	3	3	3	4	3		2	Canada	1	8	2		1	1	
82	1	2	4	3	5	4	5	5	2	4	3	4	4	2	1	canada	1	4	1		1	1	
83	2																						
84	1	4	2	2	3	4	3	2	2	2	2	2	4	7	2	Canada	1	5	6		1	3	
85	1	4	4	4	4	4	3	3	2	4	4	2	4	7	1	Scotland	4	6	6		1	2	
86	1	4	4	3	3	4	3	3	4	4	3	2	4	7	2	Canada	1	4	6		1	2	
87	1	2	3	5	4	5	5	4	2	3	3	5	4	5	2	Canada	1	5	1		1	3	I volunteer with the Bissell Centre (lunches for the homeless)
88	1	4	3	2	2	3	2	2	4	3	2	2	2	3	2	Canada	1	5	5		1	1	
89	1			4																			
90	1	3	3	3	3	3	3	3	3	3	3	3	3	2	2	Canada	1	3	5		2		
91	1	5	1	3	1	4	1																
92	1	3	3	3	2	1	3	3	2	3	3	2	2	3	2	Canada	4	6	1		1	1	

93	1	2	3	3	4	4	4	2	2	2	3	4	4	2	1	Canada	3	6	3		1	1	
94	1		4	1	1	3																	
95	1	3	3	3	3	3	3	3	2	3	3	3	3	5	2	Canada	1	4	1		1	1	
96	1	3	3	3	4	2	3	3	4	4	2	3	3	5	2	U.k.	5	7	1		2		
97	1	5	3	3	4	4	1	5	2	1	3	3	4	2	2	Canada	1	5	2		1	1	
98	1	2	2	3	4	3	4	4	2	2	3	4	2	2	1	Canada	1	5	1		1	3	
99	1	2	2	2	3	2	3	4	3	2	3	3	2	3	2	Canada	1	5	7	Full-time student and part-time employment	1	5	I am a donor and I volunteer
100	1	3	3	3	3	4	3	3	2	3	3	3	3	4	2	Canada	1	6	1		1	2	
101	1	4	4	3	1	2	2	2	4	3	2	2	2	3	1	Canada	1	5	1		1	2	
102	1	4	4	3	2	3	3	3	4	4	3	2	3	6	1	Canada	1	6	6		1	1	
103	1	5	4	5	3	5	4	5	5	5	4	1	5	2	2	Canada	1	5	1		1	2	

Appendix C - Recruitment Email

The Globalization of Food Security: The role of preferences and nudges in framing the food security agenda

The study in which you are invited to participate concerns how people make decisions. You will be asked to allocate funding between a series of different food security initiatives. In each question you will be able to allocate funding between the two options. You will also be asked a series of skill-testing math based questions. Upon completion of the allocation questions, you will be asked to answer a series of demographic questions.

Participation in this study is voluntary, and will take approximately 15 to 20 minutes of your time in total. By participating in this study, you will learn about research in decision-making in general and the topic of this study in particular. In addition, you will receive a detailed debriefing form about the study.

This research is being conducted by Kaitlyn Wolfert (kaitlyn.wolfert@usask.ca), under the supervision of Professor Peter Phillips (peter.phillips@usask.ca), of the Johnson-Shoyama Graduate School of Public Policy at the University of Saskatchewan.

This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca 306-966-2975. Out of town participants may call toll free 888-966-2975.

If you wish to participate in this study please follow this link: https://fluidsurveys.usask.ca/surveys/V47z3vSbZXSrgc99NZdv4TgXGxwwFs/k-wolfert-thesis-v-1/

Cheers,

Kaitlyn Wolfert

MPP Candidate
Johnson-Shoyama Graduate
School of Public Policy
kaitlyn.wolfert@usask.ca
(1-780) 218-2092

Appendix D – Policy Scan

Appendix D.1 – Local Policy Scan

Province	Education Programs	Community Kitchens	Community Gardens	Drop-In Meal Programs	Food Banks	Community Empowerment/Action Programs
British Columbia (Vancouver)	*Food Skills for Families* *Britannia School Urban Garden Project* *The World in a Garden*	*Food Skills for Families* *Fresh Choice Kitchen*	*Britannia School Urban Garden Project* *The World in a Garden*		*Greater Vancouver Food Bank Society*	*Farmers' Market Nutrition Coupon Program*
Alberta (Calgary/ Edmonton)	*Community Kitchen Program of Calgary – Souper Stars*	*Community Kitchen Program of Calgary – Calgary's Cooking*	*Sustainable Food Edmonton* *E4C – Community Garden Program*	*Hope Mission* *Community Kitchen Program of Calgary – Tummy Tamers*	*Edmonton Food Bank* *Calgary Food Bank*	*WeCan Food Basket* *Community Kitchen Program of Calgary – Good Food Box*
Saskatchewan (Saskatoon)	*Saskatoon Food Bank and Learning Centre*		*Saskatoon Food Bank and Learning Centre – The Garden Patch*	*CHEP Good Food Inc.*	*Saskatoon Food Bank and Learning Centre*	*CHEP Good Food Inc. – Good Food Box*
Manitoba (Winnipeg)					*Winnipeg Harvest Inc.*	*Winnipeg FoodShare Co-Op – Good Food Box Program*
Ontario (Toronto)	*FoodShare Toronto Inc. – Cooking Programs*	*FoodShare Toronto Inc. – School Grown Program*	*FoodShare Toronto Inc. – Cooking Programs*	*Daily Bread Food Bank*	*Daily Bread Food Bank*	*FoodShare Toronto Inc. – Good Food Box Program*

Education Programs	Community Kitchens
Food Skills for Families (British Columbia) - Teaches healthy eating and cooking skills - Designed to promote wellness and prevent chronic disease - "As of December 31, 2009, the Community Facilitators delivered the program to over 1600 participants (with 1500 children)." (Final Evaluation Report 2010, 6) - "… Food Skills for Families – that was implemented in the fall of 2008 and is currently funded through March 2011." (3) (See Chart pg. 13) - Number of Phase 3 participants who eat vegetables/salads 2 or more times per day: pre-course 36.3%; post-course 54.5% - Number of Phase 3 participants who eat fruit 2 or more times per day: pre-course 34.5%; post-course 52.2%	Food Skills for Families (British Columbia) - Teaches healthy eating and cooking skills - Designed to promote wellness and prevent chronic disease - "As of December 31, 2009, the Community Facilitators delivered the program to over 1600 participants (with 1500 children)." (Final Evaluation Report 2010, 6) - "… Food Skills for Families – that was implemented in the fall of 2008 and is currently funded through March 2011." (3) (See Chart pg. 13) - Number of Phase 3 participants who eat vegetables/salads 2 or more times per day: pre-course 36.3%; post-course 54.5% - Number of Phase 3 participants who eat fruit 2 or more times per day: pre-course 34.5%; post-course 52.2%
Britannia School Urban Garden Project (British Columbia) - School based garden project - "50 students from grade 8 to 10 classes" - capacity building, infrastructure building, provides produce to school cafeteria, reduce food waste - Project goals: "1) Building student and community skills and food awareness that will help reconnect participants to the land and food they eat, support healthy food choices and foster leadership development in the area of urban agriculture. 2) Improving students' awareness of environmental and health issues as it pertains to growing food locally. 3) Fostering stronger networks, partnerships and linkages between Britannia School, the community centre, and the wider community. 4) Growing fresh produce for the school cafeteria."	Fresh Choice Kitchens (British Columbia) "A community kitchen is a group of individuals who: - meet regularly to cook (and often eat) healthy, nutritious meals - are encouraged to participate to the best of their abilities in menu selection, shopping, preparation and cooking - most importantly, have an interest in food!"
The World in a Garden (British Columbia) - "The World in a Garden is a multicultural urban farm and garden project that educates community and youth about the nutritional, cultural and environmental aspects of growing and eating food."	Community Kitchen Program of Calgary – Calgary's Cooking Program (Alberta) - Community Kitchen Program: Participants plan a menu, purchase ingredients and prepare a meal together. Members share knowledge of recipes, preparation skills and nutrition with each other.
Community Kitchen Program of Calgary – Souper Stars Program (Alberta) - Souper Stars: - Teach grade 4-6 children how to attain a safe and healthy lifestyle - 67,000 snacks distributed in 2014	FoodShare Toronto Inc. – Cooking Programs (Ontario) - Cooking: Good food lunches served: 48,000 Participants in community kitchens: 900 Caregivers who learned to make baby food: 1,319 Cups of soup served: 16,000
Saskatoon Food Bank and Learning Centre (Saskatchewan) - Aim 4 Help Program (2009): "a healthy lifestyle program with an emphasis on nutrition and meal preparation skills" – includes breaks for physical activities and encourages participants to set and achieve health goals	

Community Gardens	Drop-In Meal Programs
Britannia School Urban Garden Project (British Columbia) - School based garden project - "50 students from grade 8 to 10 classes" - capacity building, infrastructure building, provides produce to school cafeteria, reduce food waste - Project goals: "1) Building student and community skills and food awareness that will help reconnect participants to the land and food they eat, support healthy food choices and foster leadership development in the area of urban agriculture. 2) Improving students' awareness of environmental and health issues as it pertains to growing food locally. 3) Fostering stronger networks, partnerships and linkages between Britannia School, the community centre, and the wider community. 4) Growing fresh produce for the school cafeteria."	Hope Mission – Edmonton & Calgary (Alberta) - 349,652 meals served - 87,235 bag lunches - 54,520 volunteer hours (2013 Annual Report) Community Kitchen Program of Calgary – Tummy Tamers Program (Alberta) - Feeding program for 5-12 year olds in low income communities during July and August - Served 5,240 lunches and 7,662 snacks in 2014 - Fed over 8,800 children
The World in a Garden (British Columbia) - "The World in a Garden is a multicultural urban farm and garden project that educates community and youth about the nutritional, cultural and environmental aspects of growing and eating food." Sustainable Food Edmonton (Alberta) - 2013 – 37 gardens; 247 gardeners (respondents) – 1090 total (2013 Community Survey) - 2012 – average $14.90 savings per week on groceries (2012 Community Survey) - 2012 – 28 gardens; 2186 shopping bags of food	CHEP Good Food Inc. (Saskatchewan) - 2013-2014: 5,232 cases of fruit; 2,265 cases of vegetables; 36,444 L of milk distributed for school/community group children's lunch programs - Supported over 240,000 lunches at community schools; 22,534 lunches at 25 other schools and the YWCA shelter - 9,086 Good Food Boxes delivered to 400 families bi-weekly (2014 Annual Report) - Total revenues: $1,394,186 ($1,040,739 for food security programs) - Total expenses: $1,532,598 ($1,259,094 for food security programs) (2014 Financial Statements)
E4C – Community Garden Program (Alberta) - "The Community Garden provides the opportunity for local residents to grow their own vegetables, herbs, fruit, and flowering plants." - Located at Alex Taylor School in Edmonton, AB Saskatoon Food Bank and Learning Centre – The Garden Patch (Saskatchewan) - 1.5 acres - 1,000 volunteers – 2,000 hours - 17,000 lbs. of produce (2014 Year in Review)	FoodShare Toronto Inc. (Ontario) Cooking: - Good food lunches served: 48,000 - Participants in community kitchens: 900 - Cups of soup served: 16,000 Schools: - School meals to 160,256 students (2014 Annual Report) - Revenues: $6,459,370 - Expenses: $6,367,548 (2014 Financial Statements)
Food Share Toronto Inc. – School Grown Program (Ontario) Fresh Produce: - 2,097,245 lbs. of fruits and vegetables distributed - 85, 407 Good Food Boxes distributed	Daily Bread Food Bank (Ontario) - 700,700 individuals accessed member agencies (1 year) - 9,416,167 lbs. of food distributed: - 1,400,234 lbs. to meal programs - 7,259,602 lbs. to Food Banks and programs (2014 Annual Report) - Total incomes: $12,902,067 - Total expenses: $12,607,011 (2014 Financial Statements)

Food Banks	Community Empowerment/Action Programs
Greater Vancouver Food Bank Society (British Columbia) - Can purchase $3 worth of food for $1 donated - 28,000 individuals per week (15 facilities) (2014 Audited Financial Statements) - $8.16 million in donations ($8.36 in 2013) – Food Only - 85, 394 volunteer hours (90, 700 in 2013) - Total income: $12, 369, 632 ($12, 416, 945 in 2013)	Farmers' Market Nutrition Coupon Program (British Columbia) "Coupons can be spent at all BC Farmers' Markets that participate in the FMNCP to purchase fruits, vegetables, cheese, eggs, nuts, fish and meat. Each household enrolled in the program is eligible to receive a minimum of $15 per week in coupons." (FMNCP Program Results Report 2013) - In 2014, 48 communities, 3000 households - 2013 – 69% of respondents reported that the program "greatly increased the affordability of healthy food" (7) 2013 – 642 farms redeemed $359,559 (6) - 2013 – 34 communities; 2292 families/seniors (6)
Edmonton Food Bank (Alberta) - 15,000 individuals per month; 410,000 meals per month (through 210 agencies) - collects 3 million kgs of food in 2014 ($16.5 million) - 2014 – 50,000 volunteer hours (2014 Annual Report) - 2013 – total revenue: $3,139,837; total expenditures: $2,543,975 (2013 Financial Statements)	WeCan Food Basket (Alberta) "Assists low/fixed income individuals by arranging for food pick-up" on the third Thursday of the month, food purchased on the first Friday (bought in bulk) – ensures individuals have food until the end of the month (Vital Signs: a report on food security in Edmonton)
Calgary Food Bank (Alberta) - 132,469 individuals accessed food bank (16 million lbs.) - 110 agencies – 486,080 meals - 6,000 volunteers – 106,000 hours - $1 donated buys $5 worth of food - Total revenue: $38,143,584 - Total expenses: $38,300,401 (2013-2014 Annual Report)	Community Kitchen Program of Calgary – Good Food Box Program (Alberta) - "The Good Food Box makes top-quality, fresh food available in a way that does not stigmatize people, fosters community development and promotes healthy eating." - Boxes, filled by volunteers with fresh fruits and vegetables, are delivered to depots for clients to pick up monthly. - Bulk purchasing allows clients to purchase Good Food Boxes at a reduced price.
Saskatoon Food Bank and Learning Centre (Saskatchewan) - 65,480 food baskets - 2,388,197 lbs. of food donated - 12,500 volunteer hours (2014 Annual Report)	CHEP Good Food Inc. – Good Food Box Program (Saskatchewan) - 9,086 Good Food Boxes delivered to 400 families bi-weekly (2014 Annual Report) - Total revenues: $1,394,186 ($1,040,739 for food security programs) - Total expenses: $1,532,598 ($1,259,094 for food security programs) (2014 Financial Statements)
Winnipeg Harvest Inc. (Manitoba) - Distributes to 61,691 Manitobans through 389 agencies per month - 336,960 volunteer hours	Winnipeg FoodShare Co-op – Good Food Box Program (Manitoba) - "The Good Food Box is an easy way to access fresh fruits and veggies at an affordable price, from a convenient location. Boxes are packaged by volunteers and delivered to community depots on a bi-weekly basis."
Daily Bread Food Bank (Ontario) - 700,700 individuals accessed member agencies (1 year) - 9,416,167 lbs. of food distributed: 1,400,234 lbs. to meal programs 7,259,602 lbs. to Food Banks and programs (2014 Annual Report) - Total incomes: $12,902,067 - Total expenses: $12,607,011 (2014 Financial Statements)	FoodShare Toronto Inc. – Good Food Box Program (Ontario) - "Good Food Boxes are volunteer packed with fresh, high-quality, culturally appropriate vegetables and fruits. With the box menu changing weekly, each Good Food Box presents a convenient and affordable way to eat good healthy food." - 85, 407 Good Food Boxes distributed in 2014, adding up to approximately 527, 181 lbs. of fresh fruits and vegetables - Focus on locally products as well as culturally appropriate international products like mangoes, okra and bananas

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Appendix D.2 – Global Policy Scan

Food and Nutrition Assistance	Research and Development	Sustainable Agriculture Development
Emergency Food Assistance - World Food Programme - Red Cross - Canadian Foodgrains Bank - Direct aid in the case of emergency or disaster	*Research Partnerships with Developing Countries* - International Development Research Centre (IDRC)	*Environmental Sustainability* - Financing Programs - Partnerships with researchers
Nutrition Intervention (School Feeding Programs) - World Food Programme - UNICEF	*Research Funding for Scientists (focus on increasing nutritional value and sustainability)* - The Consultative Group for International Agricultural Research (CGIAR)	*Climate Change Resilience* - Financing programs - Partnerships with researchers
		Rural Poverty Reduction - Infrastructure investments (water, health infrastructure)

Research and Development
Research Partnerships with Developing Countries *International Development Research Centre (IDRC)* Examples: "Improving pulse crop production in Southern Ethiopia" - develop improved varieties (focus on increased yields and promoting nitrogen fixing qualities) - improve soil fertility and soil conservation "Improving nutrition in Ethiopia through plant breeding and soil management" - Develop improved chickpeas and haricot bean varieties (high yielding, greater micronutrient availability) "Increasing millet production in South Asia" - Increase production of millet and pulse varieties - Conserve threatened millet varieties
Research Funding for Scientists (focus on increasing nutritional value and sustainability *The Consultative Group for International Agricultural Research (CGIAR)* Examples: Global Rice Science Partnership (GRisP) - "…analysts in the World Bank's Development Research Group have found that, comparing a common rate of productivity growth across commodities, productivity growth for rice have more than double the global poverty reduction potential of any other agricultural product."(8) CGIAR Research Program on Grain Legumes - focuses on reducing rural poverty, securing food supplies, improving diets, and sustainably intensifying farm production

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